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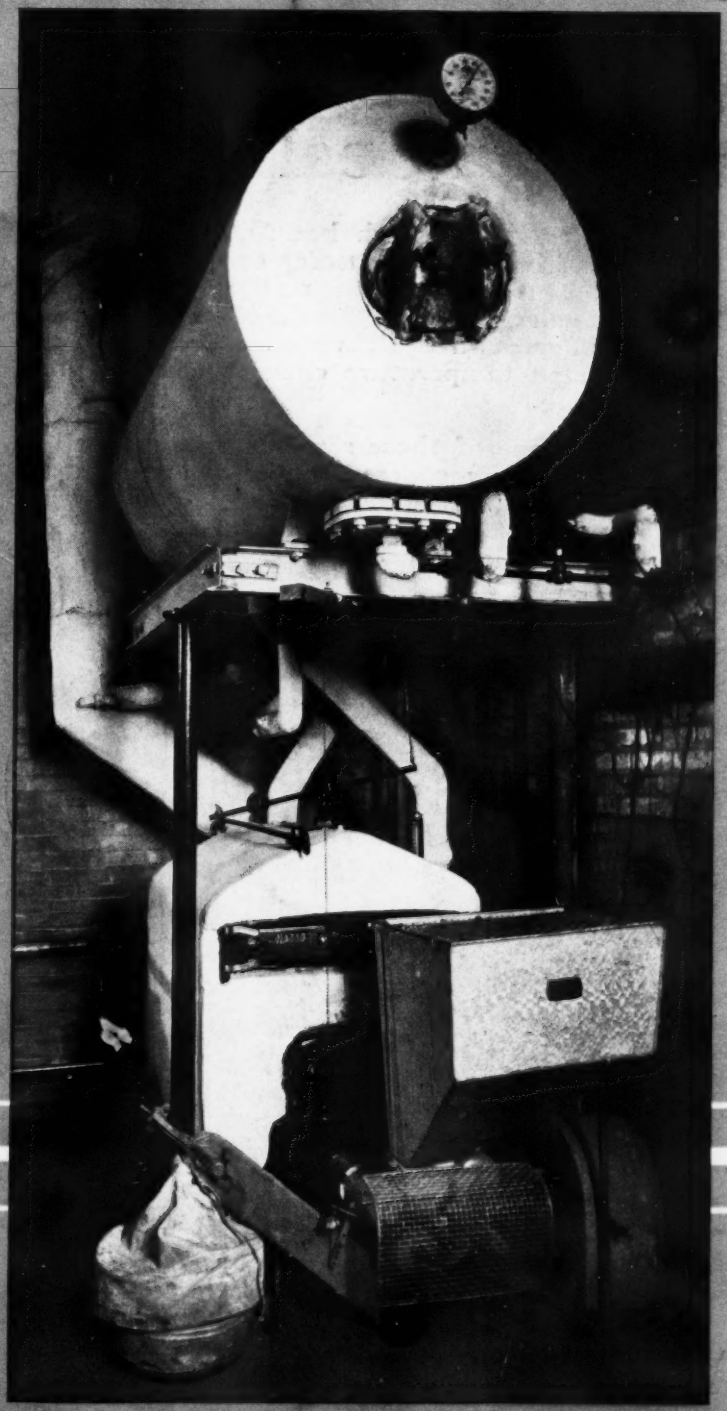
DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising



Stokers *for* Domestic Use

NOVEMBER
30
1929

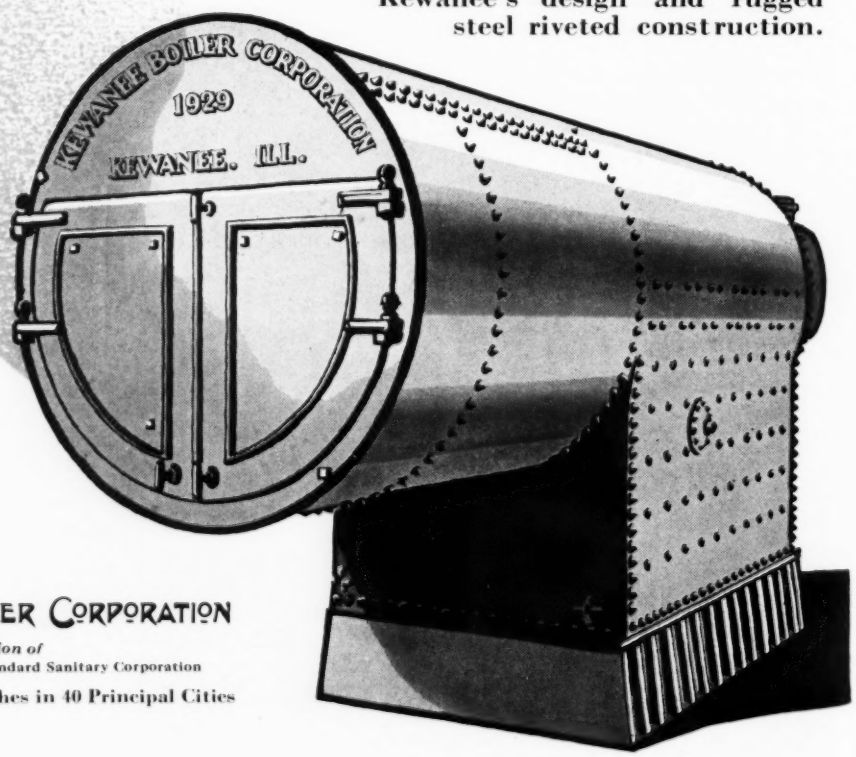
KEWANEE

STEEL RIVETED BOILERS

Equally Efficient with Coal *or* Oil

Oil makes a quick hot fire—so the boiler must have a *large water content* to absorb the heat: The firebox must be *high* to provide plenty of space for the oil and air to mix: And great strength is needed because of the sudden temperature changes caused by an oil fire.

Each one of these requirements, as well as many others, is ideally answered by Kewanee's design and rugged steel riveted construction.



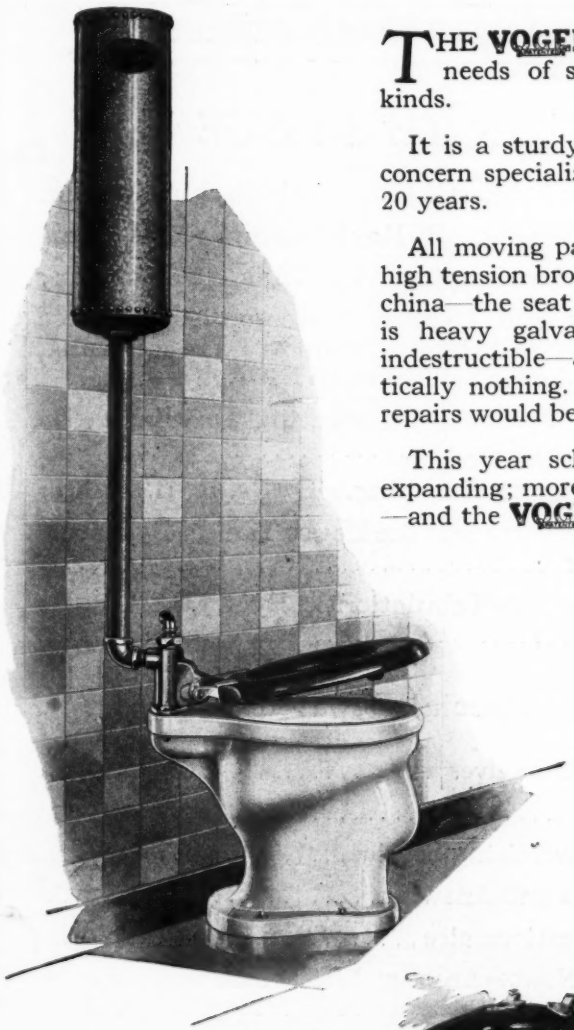
KEWANEE BOILER CORPORATION

division of

American Radiator and Standard Sanitary Corporation

Kewanee, Ill. Branches in 40 Principal Cities

Larger Schools . . . More Modern Factories . . . Greater Institutions of All Kinds . . . . . *Mean More Number Tens to be Installed by You*



THE VOGEL Number Ten is designed to meet the needs of schools, factories, and institutions of all kinds.

It is a sturdy, durable seat-action closet, made by a concern specializing in seat-action closets for more than 20 years.

All moving parts of the VOGEL Number Ten are of high tension bronze—the bowl is heavy two-fired vitreous china—the seat is made to our specifications—the tank is heavy galvanized iron, leak-proof and practically indestructible—*and the upkeep cost is low,* practically nothing. Even over a period of years the only repairs would be a couple of washers every 10 or 15 years.

This year school buildings are larger; factories are expanding; more and more institutions are being erected —and the VOGEL Number Ten is the closet they need.

We help you to get this business with a complete direct-by-mail campaign to every school, factory, and institution in the country. Work with us—Use our folders and stickers. We'll supply as many as you need. Folders are imprinted with your name and address. Tell us how many.

See inside back page for COLDIE and FROSTIE the VOGEL Cold-Test Twins.

Can be supplied with open front seat

JOSEPH A. VOGEL COMPANY

Wilmington, Del. St. Louis, Mo.

. . VOGEL PATENTED *Products* . .

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

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WOLVERINE

BUSINESS IS GOOD

for those who install

DEPENDABLE "WB" BRASS

Who gets the high-grade, profitable plumbing jobs? Usually it's the plumber with a reputation for high class merchandise and fine work.

That's one reason it PAYS to standardize on Wolverine Brass Goods and Specialties. Another reason is their ease of installation, which speeds up every job.

Examine any Wolverine fixture — for instance the No. 6031-X Pop-Up Waste and Overflow, illustrated. See its sturdy enduring construction. Try its smooth action. Examine the mechanical refinements; they are as outstanding as those in a good car. Note the heavy Wolverine Chromium Plating on exposed parts — the stopper that unlocks and lifts out.

Does it pay to use Brass Goods of such obvious quality? Seventeen thousand plumbers who are buying here regularly, say yes.

WOLVERINE BRASS WORKS

GRAND RAPIDS WB MICHIGAN

"Domestic Engineering" is a great help to the man who wants to help himself.

Between Ourselves

"Engineering is a bridge connecting Science and Industry."—Ambrose Swasey.

We are publishing the first of two interesting articles on the subject of water softening, in this issue, by Ray Riley and V. F. Lamela. These articles include the classification of waters as to source, quality and characteristics in all sections of the country. If you read the first one you will not want to miss the second one.

Your Editor

THE conclusions reached in these analyses of water softening methods are written with the authority of first hand knowledge and study in the field. The first article is accompanied by a map indicating the condition of water throughout the United States, from the standpoint of hardness, and a diagram showing how natural conditions affect the amount of hardness of water. Even the ancients knew that certain waters were hard and others soft, and that some of the unsatisfactory qualities of a water were due to dissolved minerals, and they even had various primitive methods for purifying or refining an unwholesome water, but the authors show that we have made startling advancement in this field since ancient days.

AUTOMATIC stokers for the ordinary house heating plant is another phase of the plumbing and heating contracting business which has been developing more in recent months than ever before. There are a number of reasons why the stoker has not come into wider popularity with the average householder, which are discussed by Noel Cunningham in his article, "Stokers for Domestic Use," published in this issue, but he feels that there is undoubted opportunity for the contractor in this field. Mr. Cunningham's study of stokers, the conditions relating to their use and development should be read by all progressive-minded contractors.

STORE fronts play a large part in securing and holding business, no matter what the establishment may be engaged in selling, but it is surprising how many store owners you find who are still unwilling to recognize this simple and obvious fact. The store front is as important as the merchandise you sell. If you want some excellent suggestions and information about store fronts, read the first article in the Merchandising Feature Section of this issue. It tells you how to double the volume of your business. And while you are in that section, don't fail to read the article on "Christmas Window Merchandising." Moreover, don't skip the Master Salesman; he has something of value for you.

THE following is a letter recently received from one of our subscribers:—"DOMESTIC ENGINEERING looks better and better as the new issues come rolling in. If you keep on it may be like aviation—no telling where you will land in a few more years."—John C. Sherman, Cisco, Texas.

THE standardization of symbols for heating and ventilating drawings is a need that the industry is realizing more and more all the time, for it is easily apparent that there must be a national standard rather than a multitude of methods of representation which vary with the locality or the individual draftsman. J. H. Walker, chairman of the subcommittee of the American Society of Heating and Ventilating Engineers on standard symbols, has written a review of the situation for this number, called "Standard Symbols for Heating Drawings," which shows the complete set of symbols adopted by the society.

OF COURSE most of our readers are familiar with DOMESTIC ENGINEERING'S Retail Advertising Service, which appears in every issue, but how many avail themselves of it we cannot tell. We only desire to remind you that this service is provided entirely for your benefit. This section always carries plenty of usable material for a variety of advertising approaches. If your business is lagging, try letting the public know you are still in existence, and have something they need. Send out personal sales letters, try circulars and use your local newspaper. Don't advertise once and then stop. Keep on pounding; it is certain pay.

THOSE of our readers who are in any way interested in the installation of drinking water systems, we urge to read our article in next issue dealing with that subject. We can assure you that the material is handled with the authority of complete understanding of the engineering problems involved in planning, figuring and installing drinking water distributing systems. Furthermore, the illustrations, tables and diagrams which accompany the context are of direct aid to the contractor.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

EverHot AUTOMATIC WATER HEATER

Commander

IS A BIG HEATER FOR BIG JOBS!

The Commander is of ample capacity to handle the hot water requirements in large residences having three and four bathrooms, two-family houses, and small four-family flats. It is also ideal for installation in busy restaurants and other commercial jobs.

PERTINENT FACTS:

STORAGE CAPACITY

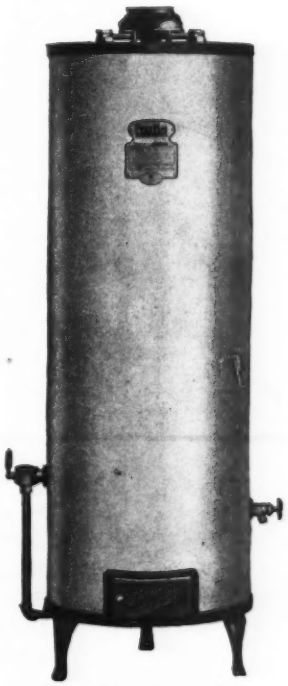
50

GALLONS

Burner Capacity - - - - - - 50,000 B. T. U. per hour

Starting hot, the Commander will deliver 100 GALLONS OF HOT WATER 100° RISE IN TEMPERATURE IN ONE HOUR.

The Commander is equipped with the exclusive EverHot Faucet Leakage By-Pass and Automatic Pilot Control.



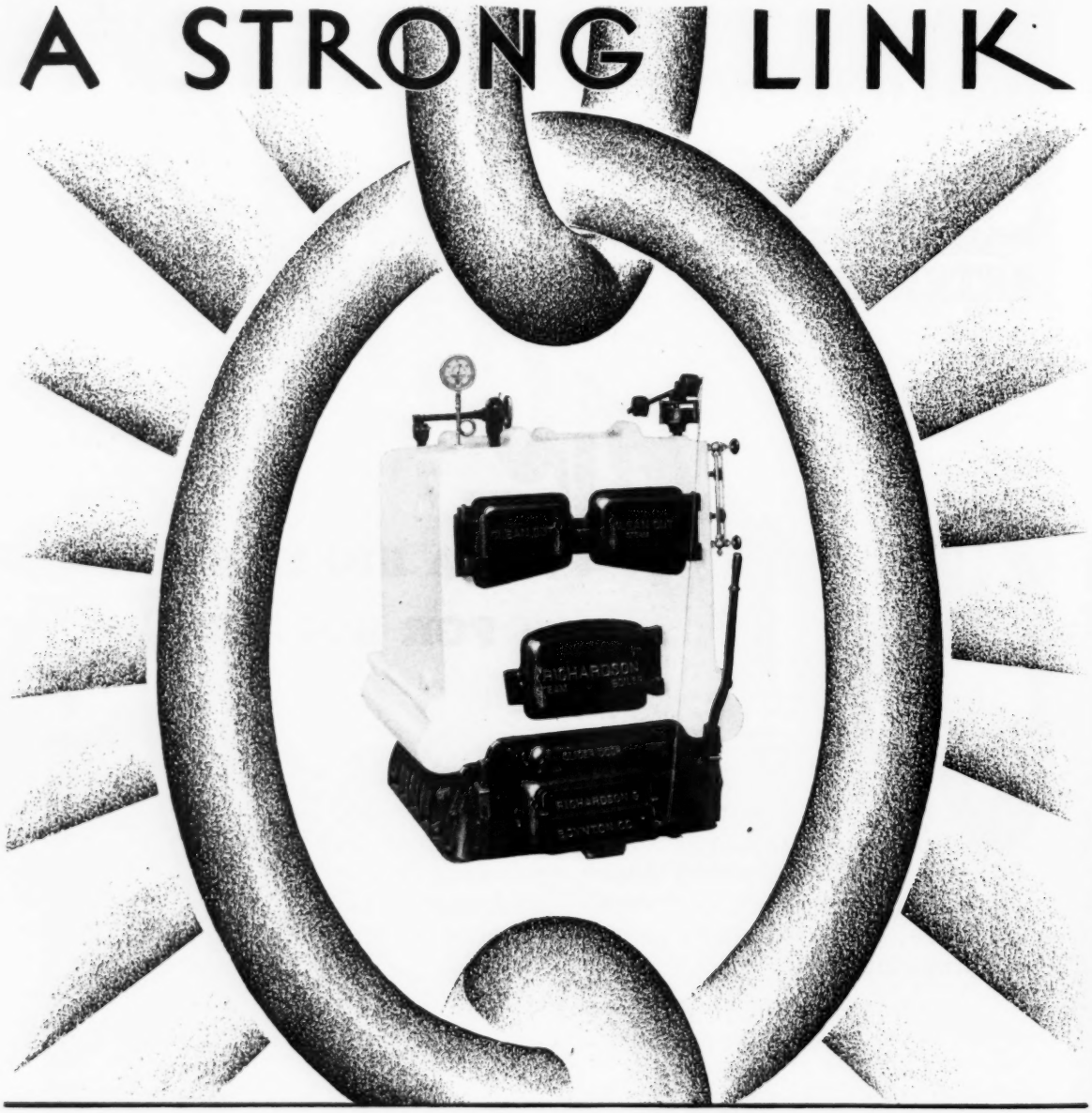
The Commander

It will Command More Big Business For You—USE IT

EverHot Heater Company

5211 Wesson Ave. **Detroit, Michigan**

A STRONG LINK



This Company believes in utmost protection to the dealer—the logical link between factory and consumer.

SMALL home jobs—one link in your program. Large installations—another. And here's the third—a link that strengthens your whole "keep busy" campaign.

Whenever you have a medium-sized installation think of the Richardson End Feed Sectional Boiler. It will answer every heating problem in libraries, large homes, theatres and other public buildings. Generous grate areas, high combustion chambers, large heating surface and many other advantages assure typical Richardson & Boynton performance. Strengthen your hold on your entire heating territory by fitting this important link into your chain of installations.

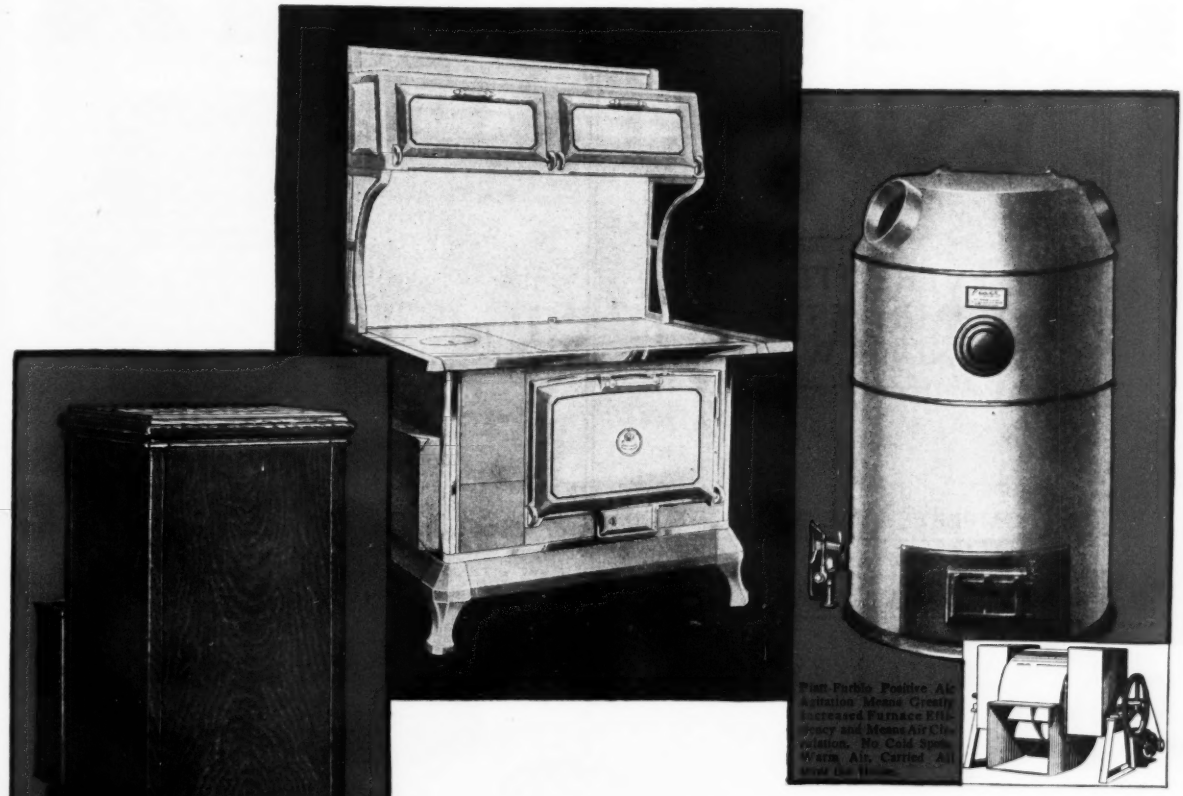
RICHARDSON & BOYNTON CO.

Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus since 1837

260 Fifth Ave., New York, N. Y. **Utica, New York**

New York Utica Newark Philadelphia Boston Chicago Buffalo Minneapolis Cincinnati Detroit Providence

PIATT *announces a complete line of oil-burning appliances*



BURN OIL
SAVE TOIL

Dealers! Here is a line of sensational sellers. Every home is a prospect—every week is selling season. They all want the economy and convenience of oil burning appliances. They get both in the marvelous Piatt burner that has no wicks, weights or moving parts but burns ordinary furnace oil almost without a moment's attention.

A modern kitchen range in lovely colors. A beautiful cabinet heater. And for the first time, a warm air furnace with a real oil burner built in and with a Furblo positively circulating clean, warm air—no cold spots in the home now! No Dirt! No Drudgery!

Any Piatt dealer can tell of good all year 'round sales with Piatt Water Heaters. The Piatt Range, the Piatt Cabinet Heater and the Piatt Circulating-Air Furnace have just as many features. They are mechanically correct, durably built and priced right for quick turnover.

Cut, fill and mail the coupon for full information.

MOTOR WHEEL CORPORATION
Heater Division
LANSING MICHIGAN

PIATT OIL BURNING APPLIANCES
HEATER DIVISION • • MOTOR WHEEL CORPORATION

Motor Wheel Corporation, Heater Division, LANSING, MICHIGAN

Send me at once, full information and profit-building plan on the Piatt Appliances. I am not obligating myself but will study the details carefully.

Name .....
(Please print or typewrite)
Street .....
City ..... *State* .....
My Business .....

PHOENIX

EVERY FITTING
AIR TESTED
UNDER WATER

A COMPLETE LINE OF STANDARD
AND
EXTRA HEAVY BRASS FITTINGS

LOOK FOR
OUR
REGISTERED
TRADE MARK
PBF
ON EVERY
FITTING

BRASS FITTINGS

PHOENIX BRASS FITTINGS CORP.
IRVINGTON, NEW JERSEY

EFFICIENCY!

STEEL HEATING BOILERS

for

COAL OR OIL BURNING

COIL WATER HEATERS

COIL HEATING BOILERS

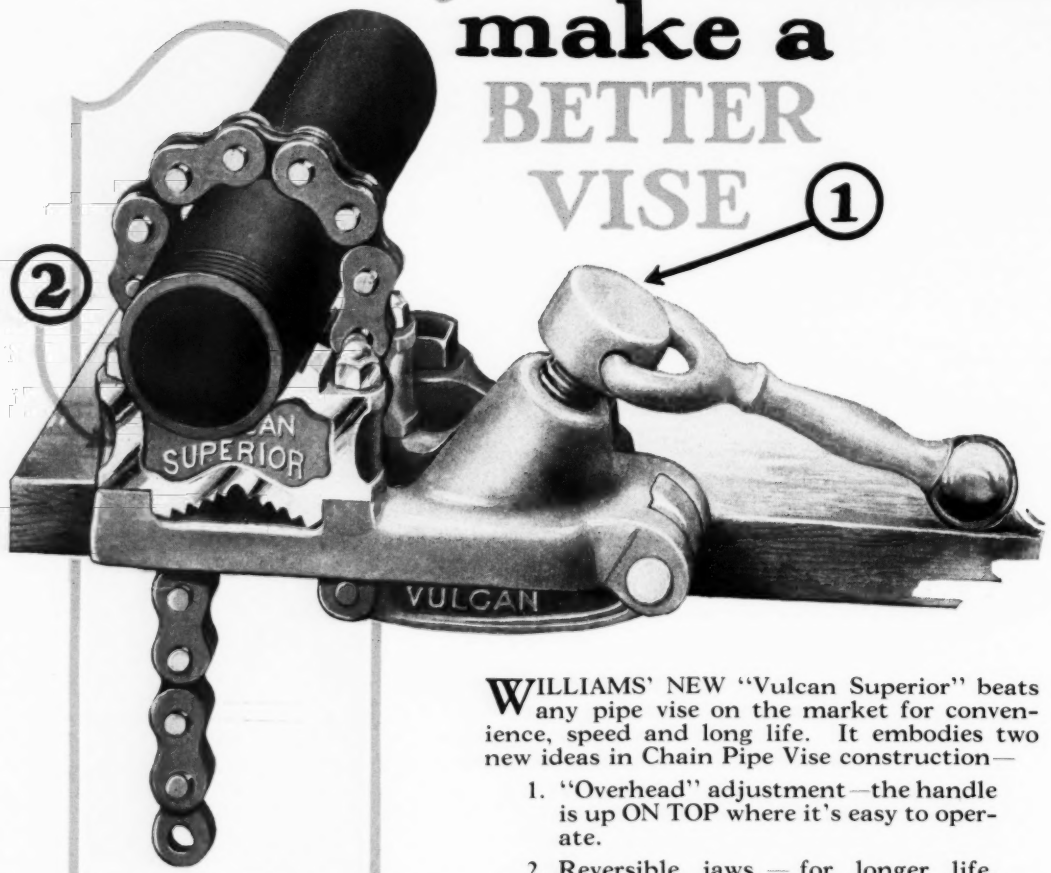
SERIES E

FIRE TUBE BOILERS

MONITOR
BOILER COMPANY

1505 RACE STREET :: PHILADELPHIA, PA.

THESE *NEW* IDEAS make a BETTER VISE



WILLIAMS' NEW "Vulcan Superior" beats any pipe vise on the market for convenience, speed and long life. It embodies two new ideas in Chain Pipe Vise construction—

1. "Overhead" adjustment—the handle is up ON TOP where it's easy to operate.
2. Reversible jaws — for longer life. When the teeth first in use wear, simply unscrew the bolts and turn the jaws over.

These valuable features are found ONLY in Williams' "Vulcan Superior"—they're patented.

You need this better vise in your work. Get it today.

J. H. WILLIAMS & CO.

"The Drop-Forging People"

New York - BUFFALO - Chicago

Chrome-Plated Finish

TWO SIZES:

No. 11 for ⅛ inch to 2½ inch pipe

No. 12 for ¼ inch to 4½ inch pipe

½ inch larger capacity in each case than other chain pipe Vises

Wholly Made of Wrought Steel

FULLY GUARANTEED

WILLIAMS
SUPERIOR DROP-FORGED TOOLS

"VULCAN" SUPERIOR CHAIN PIPE VISE

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

A Letter from Harry G. Nye

Nov. 30, 1929.

To The Plumbers and Steamfitters of The U. S. A.

"AS HANDY AS A BRICK IN A FIGHT"

Fellow Citizens:

These new lightweight portable pipe machines that all the plumbing and steamfitting shops are buying are certainly handy things--as handy as a girl's bathing suit with a pocket in to put the bathing suit in.

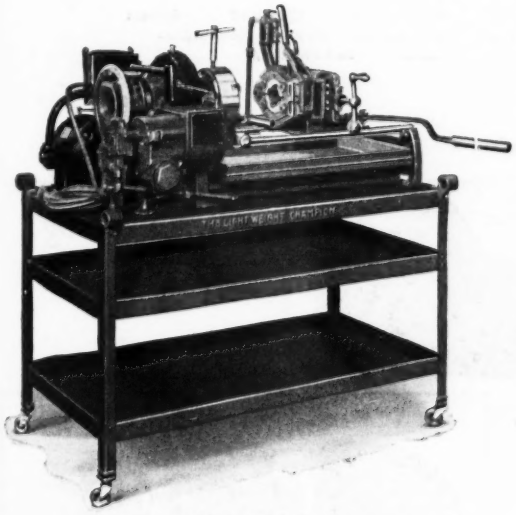
For instance, there are two speeds--forward and two reverse. You can change direction as quick and easy as a politician. If you have ever seen a Congressman reverse himself, you know just how this works.

Then there is the self-centering guide, for all sizes of pipe. The way that thing works reminds me of a star boarder finding his mouth with a forkful of chicken. I never saw it miss the mark yet. Nor him.

And no oil-cups to remember, or forget. A geared oil-pump keeps the oil coming all the while the machine is going. Only one thing in the world could ever be better. A bank that would do the same with money.

The pipe-cutter itself is the floating type, one wheel and two rollers, the kind the best cooks use--I mean the big nipple manufacturers. That makes us as good as they are, however good that is.

As for production--with its powerful motor, high speed, 12-inch carriage travel, quick acting guide and everything--well, nothing equals it for production, unless it's a housefly, or a pair of rabbits.



And as for portability, a couple of men stick a couple of pieces of inch pipe through a couple of lugs on each side, and the machine is anywhere you want it in a couple of seconds.

In fact, one customer of ours wrote in that his machine had become such a great pet that it followed him around. Personally, I think he is a liar. But it is always around somewhere handy.

Yes, sir, these portable pipe machines are a great thing--when they have these features. You wouldn't want one without, of course. The new Nye No. 50 Portable Pipe Machine, "THE LIGHTWEIGHT CHAMPION," has all of them.

Price $299.00--Dies extra.

Faithfully yours,

Harry G. Nye

PATENTS PENDING

"THE LIGHTWEIGHT CHAMPION"

POWER PIPE THREADING MACHINE
THREADS—CUTS OFF AND REAMS

Capacity ⅛ to 2 Inches

OTHERWISE KNOWN AS

THE NYE TOOL & MACHINE WORKS

4120-30 Fullerton Avenue :: Chicago, Ill.

Copyright 1929 by Harry G. Nye All rights reserved

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

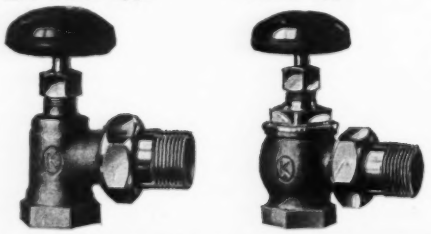
Use Kennedy Products on your next pipe fitting job

There's a Kennedy type for every valve and fitting requirement

Standard Bronze Gate Valve

Standard Iron Body Gate Valve

Radiator Valves
Hot Water Type Steam Type



ONE of the many advantages of standardizing on Kennedy Valves and Fittings is the completeness of the Kennedy line. The wide range of sizes of gate, globe, angle, and check valves, in bronze, iron body, all iron and steel, for steam, water, air, oil or gas at low, medium or high pressures, together with the many types of malleable iron and bronze pipe fittings manufactured by Kennedy provide a selection for practically every plumbing or heating job.

Each Kennedy product is designed with special reference to convenience and economy of installation and dependability of operation. Kennedy Valves and Fittings help speed up pipe fitting jobs by their clean, sharp, accurately cut threads and freedom from flaws, and once on the line, the experience of thousands of pipe fitters testifies to their excellent design, sturdy construction, and lastingly satisfactory service.

THE KENNEDY VALVE MFG. CO. ELMIRA, N.Y.

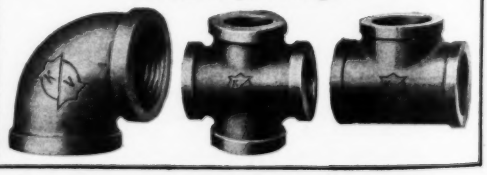
New York Philadelphia Cleveland Atlanta
Chicago Salt Lake City El Paso Los Angeles
Seattle San Francisco

Send for the Kennedy Catalog

Back-Water and Sewer Gas Valve

Malleable Iron Pipe Fittings

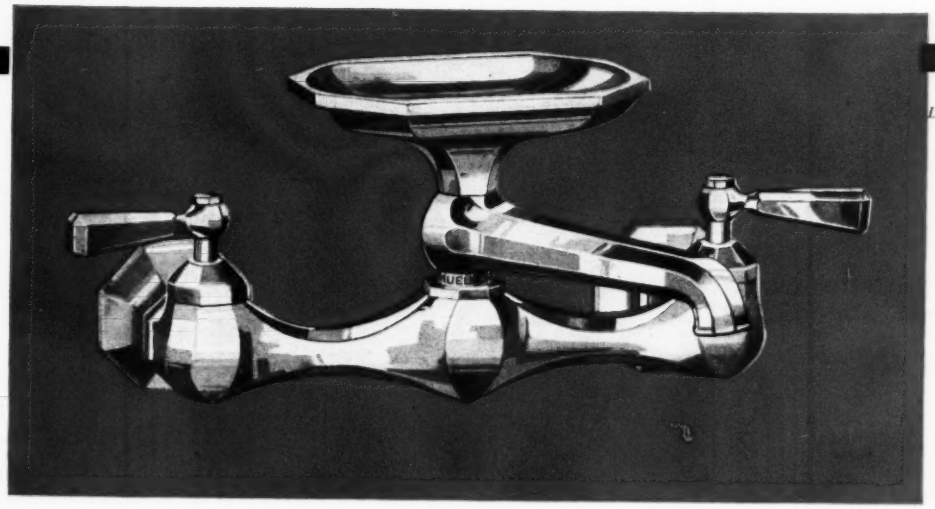
Bronze Pipe Fittings



KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

EYE VALUE!



Licensed Under Patent No. 1181570

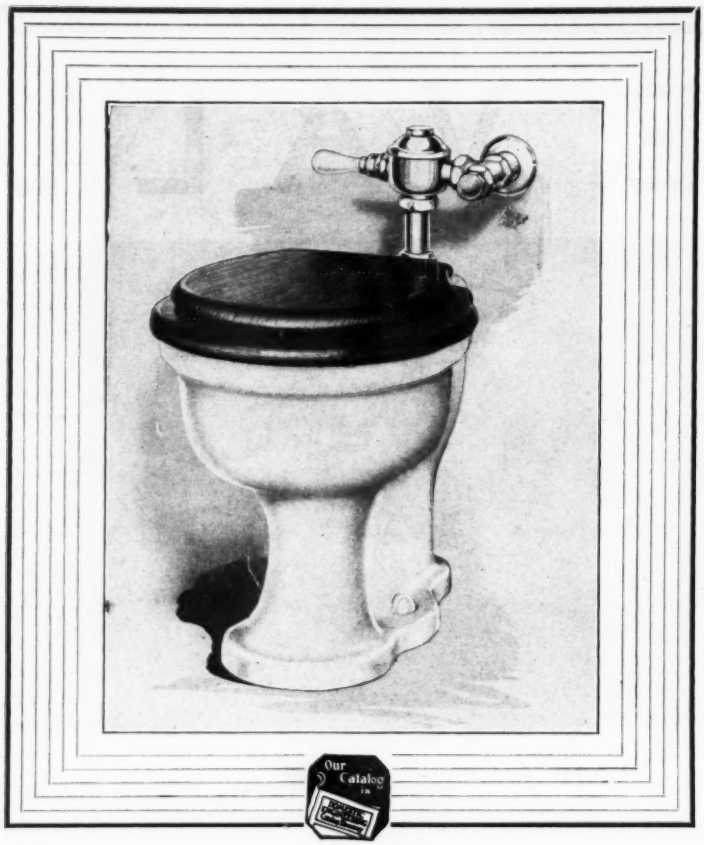
SMART designs and gleaming finish! The "eye value" of Mueller plumbing fittings wins the ready approval of architects and building owners. But there's something beyond appearance that makes Mueller products "good business" for plumbers. There is a reputation back of the Mueller name that *guarantees* dependable, trouble-free water service.

The Mueller Colonial Pattern Sink Combination (illustrated) combines smart design, chromium finish and a swinging spout that gives more room to small or large sinks. Literature illustrating and describing this and other business-producing Mueller fittings will be sent promptly upon request.

MUELLER Co. (Established 1857), Decatur, Illinois; *Branches:* New York, Dallas, San Francisco, Los Angeles. *Canadian Factory:* MUELLER, Limited, Sarnia.

MUELLER

PLUMBING BRONZE AND VITREOUS WARE



No Selling Problem Here

Have you made a check, lately, of the homes and buildings in your community?

If you haven't, you're missing many opportunities for selling Haas Flush Valve convenience and sanitation.

And a Haas Flush Valve only *starts* things for you. Its unfailing performance and the beauty it adds to the bathroom will soon bring you many inquiries for additional work.

Haas makes it possible for you to meet every demand for more beautiful, more efficient and more sanitary bathrooms.

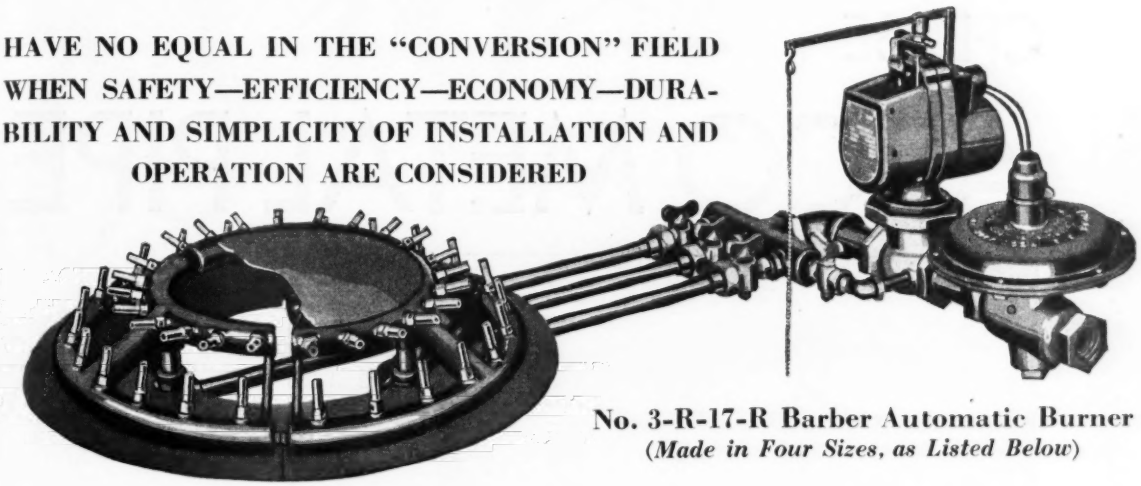
Have you the details of the complete Haas line? If you haven't, write at once.

The PHILIP HAAS CO., *Inc.*, DAYTON, OHIO

Haas

BARBER *Automatic* JET GAS BURNERS

HAVE NO EQUAL IN THE "CONVERSION" FIELD WHEN SAFETY—EFFICIENCY—ECONOMY—DURABILITY AND SIMPLICITY OF INSTALLATION AND OPERATION ARE CONSIDERED



No. 3-R-17-R Barber Automatic Burner
(Made in Four Sizes, as Listed Below)

A COMPLETE AUTOMATIC CONVERSION GAS BURNER LINE—FOR 90% of your inquiries at prices attractive to every home owner.

Barber Automatic Burners (as illustrated above) include the following items—all Completely Assembled:

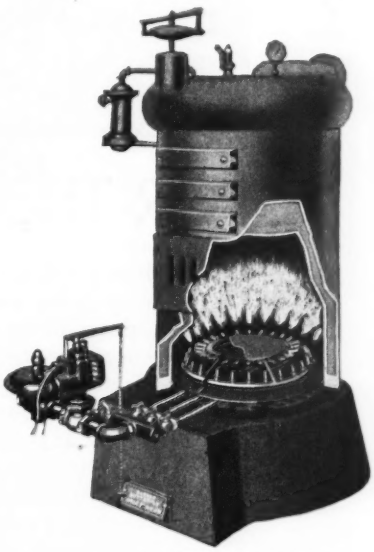
Complete Burner Assembly including Upper and Lower Baffles, Manifold, and Gas Shut-Off Cocks to each Burner Unit. Also Butterfly Draft Door Assembly and Minneapolis Room Thermostat.

Specifications and List Prices

Barber Burner Number	Grate Dia. Inches Inclusive	List Price A	List Price B	List Price C	List Price D
2-R-17-R	16 to 18	$ 84.00	$110.00	$124.00	$156.00
3-R-17-R	19 to 23	94.00	120.00	134.00	166.00
4-R-17-R	24 to 27	104.00	130.00	144.00	176.00
5-R-17-R	28 to 31	119.00	145.00	159.00	191.00

Note:—List Price A—WITHOUT Room Thermostat.
List Price B—With Minneapolis No. 4010—Plain Room Thermostat.
List Price C—With Minneapolis No. 4710—1-day Clock Room Thermostat.
List Price D—With Minneapolis No. 7710—8-day Clock Room Thermostat.

When ordering be sure to state type of Thermostat desired.



Illustrating the New (No. 3-R-17-R) Barber Automatic Conversion Burner Installed in a Round Boiler —thru the clinker door opening, without removal of grate bars.

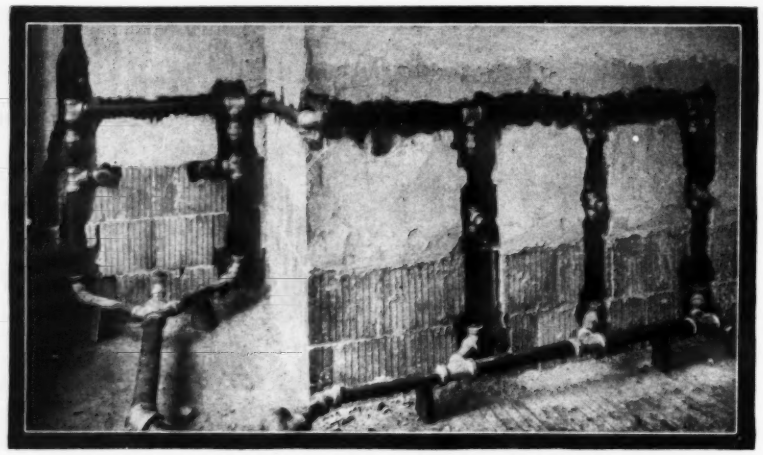
There is a proper Barber "Conversion" Assembly for practically every house heating requirement—for warm air, steam, vapor, or hot water heat.

You can *sell* and *install* these modern scientific—moderately priced — Automatic Conversion Gas Burners — with very little effort — right in your own neighborhood, upon our "Specification Data Sheet" plan and reap a good harvest in *profits* and *friends*.

Remember — every Barber installation sells many more. Our Engineering Department will gladly co-operate with you and specify every inquiry, if furnished with the Trade Name, Manufacturer's Name and Number of the Furnace or Boiler. Write us at once for details, *discounts* and sales literature.

The CLEVELAND GAS BURNER & APPLIANCE CO.
Burner Specialists
3702-04 Superior Avenue. Cleveland, Ohio

MARSHALL FIELD & COMPANY CHOSE ARCO METAL PIPE



FOR THEIR GREAT CHICAGO STORE

THE photograph above shows a typical Arco Metal Pipe installation now being made in Marshall Field & Company's world-famous Chicago store. The Arco Metal Pipe is being used in many cases where replacements are necessary.

Arco Metal Pipe will prevent damage, trouble and expense—it will mean permanence because it is a superior corrosion-resisting cast alloy pipe. It is made from a special nichrome alloy cast iron and cast by a process which gives it greater flexibility and tensile strength and far greater corrosion and erosion-resisting qualities than ordinary grey cast iron. And Arco Metal Pipe can be cut and threaded on the job with the same tools used on wrought steel and iron pipe.

Arco Metal Pipe is uniform in wall thickness—true to dimensions, smooth outside and inside. It is cast in vertical molds so there are no seams. Arco Metal Pipe is inexpensive and because of its long life, is actually an economy for any installation where corrosion and erosion are factors.

Arco Metal Pipe is sold by all leading wholesalers of plumbing and heating supplies. Accept no substitutes; it is readily distinguished with its coat of red paint, black stripe on one side and the name "ARCO" stenciled at intervals on the other. Ask our representative to show you a sample. Write today for information.

Arco Metal Pipe is the cast iron pipe that can be cut, threaded, and installed successfully with the same tools used on wrought steel and iron.

AMERICAN RADIATOR COMPANY

BRANCHES IN ALL PRINCIPAL CITIES

AT SKY HARBOR

—where Allen & Webster, Architects, achieved a triumph of modernistic airport design for Gray Goose Air Lines, Inc.

Most Interesting Air Port in the Country Chooses "B & G" Water Heaters for Efficiency

The thousands of visitors who visit "Sky Harbor" (northwest of Chicago) never see the 800-gallon B & G Indirect Water Heater which supplies hot water summer and winter for the restaurant and club house illustrated above. The management and employees need never see it either, for a B & G on the job works automatically, quite without attention.

There's a tip in this for the trade: Tie to B & G. Keep a sharp lookout for chances to install this reliable indirect water heating system which does the job so well and at the same time slashes water heating costs.

Sixteen sizes—from 30 to 1600 gallons—and all have the removable coil feature. Stocks carried in principal cities. Air Mail service on sketches.

Ask your jobber for prices.
Write us for technical details.

Bell & Gossett

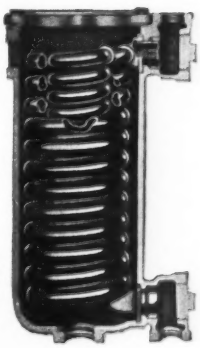
Indirect Water Heater

B & G Heater Division, Bell & Gossett Co.
3000 Wallace St., Chicago, Ill.

R. L. Deppmann Co., 511 Canfield Ave., Detroit, Mich.
Edw. H. Sinn, Inc., 119 Bergen St., Harrison, N. J.
Bell & Gossett Co., 859 Paul Brown Bldg., St. Louis, Mo.
Bernard J. Mulcahy, 210 S. 10th St., Minneapolis, Minn.
Bookhout & Law, 331 Madison Ave., New York, N. Y.
Hadyn Myer, 2224 Comer Bldg., Birmingham, Ala.
C. U. Martin, Rialto Bldg., San Francisco, Cal.
Vessey Gilbert Co., 2401 Chestnut St., Philadelphia, Pa.
M. M. Rivard, 601 Gumbel Bldg., Kansas City, Mo.
John A. Lungstrum, 522 14th St., Denver, Colo.
Lewis O. Kohlhass, 116 N. Wellesley Ave., Albuquerque, N. M.

ALSO MFRS. OF "UNITEM" SUBMERGED WATER HEATERS

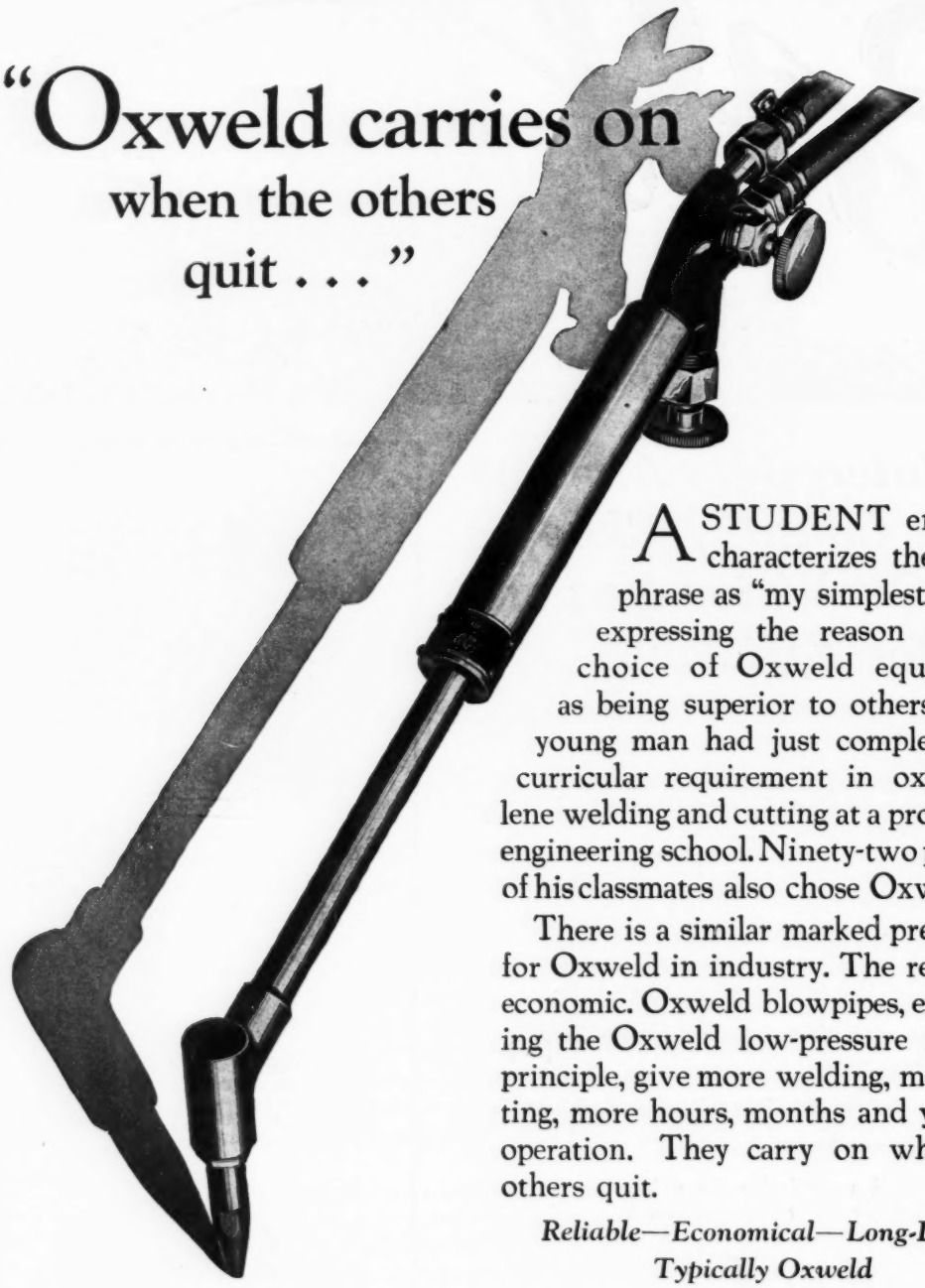
Single Coil, for bungalows and small residences. 30 to 120 gallons.



Double Coil, 160 to 400 gallons. A Triple Coil Heater covers the range of 600 to 800 gallon requirements.

Double Triple Coil, 1000, 1200 and 1600 gallons.

"Oxweld carries on when the others quit . . ."



A STUDENT engineer characterizes the above phrase as "my simplest way of expressing the reason for my choice of Oxweld equipment as being superior to others." This young man had just completed his curricular requirement in oxy-acetylene welding and cutting at a prominent engineering school. Ninety-two per cent of his classmates also chose Oxweld.

There is a similar marked preference for Oxweld in industry. The reason is economic. Oxweld blowpipes, embodying the Oxweld low-pressure injector principle, give more welding, more cutting, more hours, months and years of operation. They carry on when the others quit.

Reliable—Economical—Long-Lived
Typically Oxweld

OXWELD

WELDING AND CUTTING APPARATUS AND SUPPLIES

OXWELD ACETYLENE COMPANY
Unit of Union Carbide and Carbon Corporation

NEW YORK
Carbide and Carbon Bldg.

UCC

CHICAGO
Carbide and Carbon Bldg.

SAN FRANCISCO
Adam Grant Building

STOCKS IN 38 CITIES

IN CANADA: DOMINION OXYGEN CO., LTD.

American

TRAPS
and
SUPPLIES
in
TULSA'S
NEWEST
HOTEL

Jobbers:
Plumbers Supply Co.,
Tulsa, Oklahoma
Contractors:
Tulsa Plumbing Co.,
Tulsa, Oklahoma
Architects:
L. I. Shumway,
Tulsa, Oklahoma

Another Future Building

Just as architect, builder and contractor insisted upon the best of materials for the exterior construction of Tulsa's newest hotel, so also did they insist upon the best in the interior details.

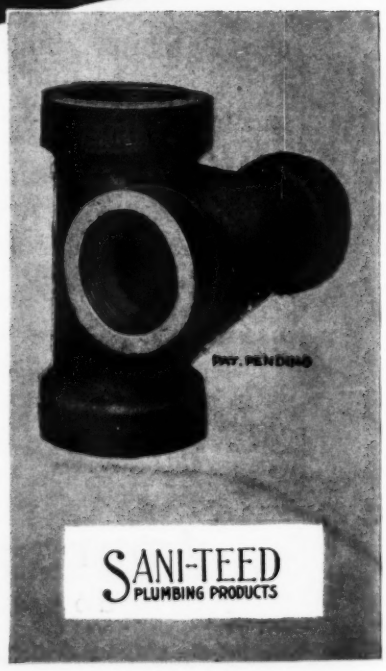
Naturally, American Traps and Supplies went in because The Bliss Hotel is a *future* building—its plumbing must be functioning with the same efficiency ten, twenty and thirty years hence as today.

There can be no failures, no expensive replacements and no guest complaints. You will find an ever increasing swing on the part of conscientious builders toward quality in plumbing brass goods.

You will also find that plumbing contractors, anxious to protect their customers and themselves are recommending American Brass Goods. For complete and lasting safety—install American. Insist upon it from your jobber.

American Sanitary Mfg. Co.
Abingdon ∴ ∴ Illinois

NIAGARA
WASTE AND VENT FITTINGS



IN modern hotel construction only the finest of equipment of every kind is used. Builders spending millions cannot afford to take a chance with inferior products. "Niagara" Fittings play an important part in the construction of such buildings. Here are five reasons why they are so often selected.

1. The branch wastes are vented at the crown, preventing self-siphonage of the fixture traps.

2. Branch wastes discharge into the vent at a steep downward grade as in the "Y" and ⅛ bend type fittings.

3. In the crosses the branch wastes discharge separately into the main waste pipe and cannot discharge into each other.

4. The waste cannot splash into the throat of the vent and deposit soap and grease to clog the vent.

5. Any of these fittings can be installed within a standard 2-in. x 4-in. stud partition.

WRITE FOR BOOKLET SHOWING TYPICAL INSTALLATION DRAWINGS AND NEW LOW PRICES.

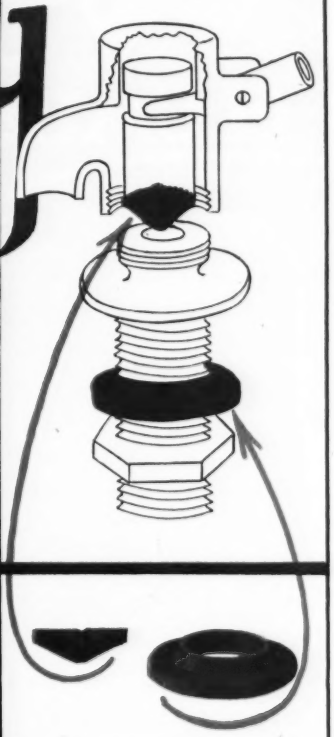
J. A. ZURN MFG. CO.

ERIE :: PENNA.

Sales Offices in the following Cities

Boston New York Philadelphia Pittsburgh
Toledo Chattanooga Chicago
Minneapolis Denver Dallas Los Angeles
Seattle San Juan, Porto Rico

Perfectly Equipped fixtures



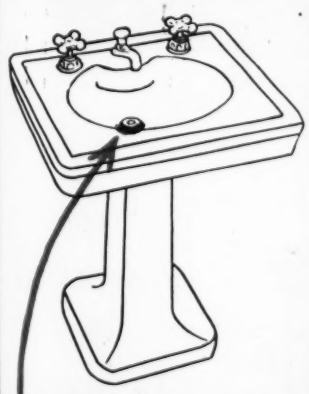
When you order new fixtures insist that they be equipped with "U. S." Royal Maroon Plumbing Specialties.

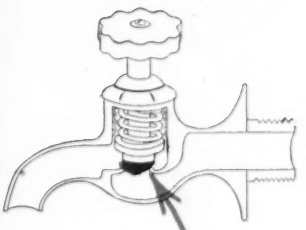
Today many homes have water meters and leaking valves and faucets are a source of expense. Customers immediately think that faulty installation is the cause. With "U. S." Royal Maroon Products installed throughout, your reputation is safe. Good will is built for future business.

"U. S." Royal Maroon Line Products eliminate leaks and positively give greater extension of life of fixtures in service.

"U. S." Royal Maroon Line is sold through selected supply houses.

Catalog sent on request





United States Rubber Company

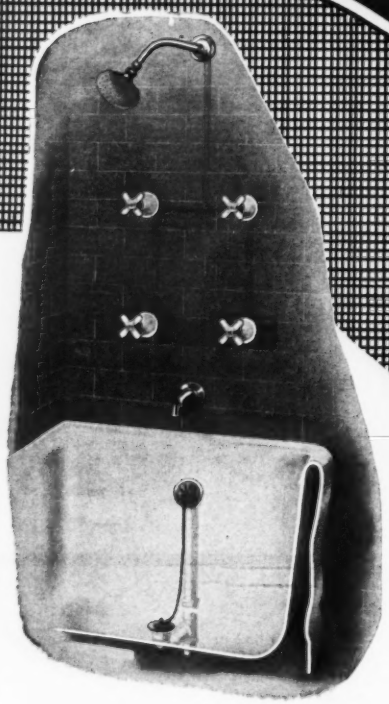
TRADE MARK

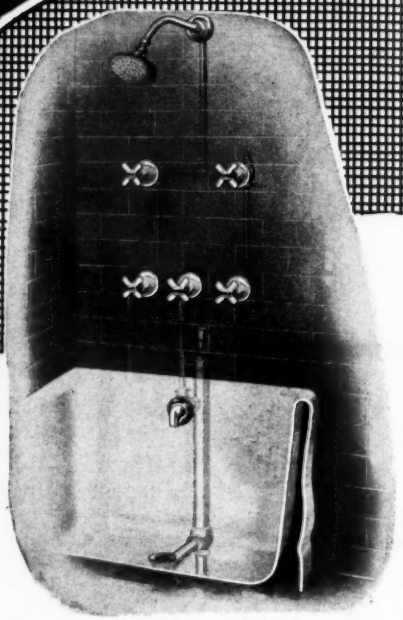
Executive Offices:
1790 Broadway, New York City

"U.S." ROYAL MAROON LINE

of Plumbers' Rubber Specialties

WISECO
PLUMBERS PRODUCTS

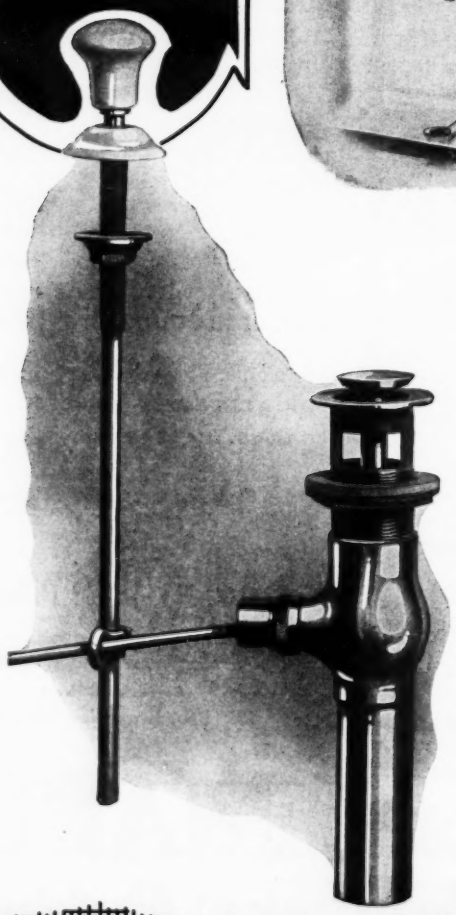




"St. Regis"
CONCEALED BATH FIXTURES
Through the rim or Over-rim types

"Wiseco"
POP-UP BASIN WASTE
Simplicity and Durability

BUILT FOR QUALITY



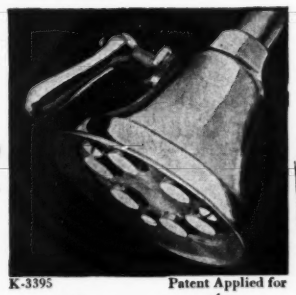
THE STANDARD OF QUALITY SINCE 1877

J. B. WISE, Inc.
WATERTOWN, N. Y.

New York
Philadelphia
Atlanta

Chicago
Los Angeles
Seattle

....This



K-3395 Patent Applied for

....+this

.....+this

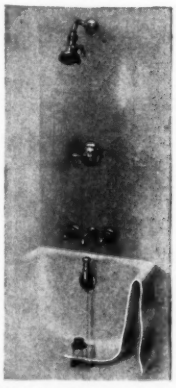
=Highly-profitable business

THERE is no question that the new Speakman Self-Cleaning Shower Head is a radical improvement over everything that has preceded it.

There is no question that it offers the Master Plumber an unusual opportunity to develop profitable new and replacement business.

People want this revolutionary shower head. It has new, important superiorities. A turn of the lever flushes out every trace of dirt and sediment—no bother of cleaning. It makes possible many different kinds of showers—a single stream, a normal spray, or a stinging needle shower—simply by turning the lever.

Backed by advertising in the widely read Saturday Evening Post, shown and explained to customers by the Master Plumber and his Journeymen, this new Shower Head is one of those rare products which will constantly fatten your profit column. Speakman Company, Wilmington, Delaware.



This complete Speakman Shower, K4034M, with the new self-cleaning head, in Speakman Chromium Plate, Price $75.00.

A turn of the lever sluices all sediment away.

Another turn of the lever gives a normal spray.

Or you can adjust to a veritable stinging needle shower.

SPEAKMAN

SHOWERS & FIXTURES

O-B No. 20 Line Valve

Gate valves that shut off tight on steam, water, air, gasoline, gas, oil and vacuum systems were one of those so-called impossibilities until the advent of the Flexitite principle. This is a design that does insure absolutely tight valves.

The No. 20 Line Valve shown above is recommended for steam pressures up to 125 lbs.

Why Your Valve Needs are Served Best

OF COURSE you have an auto truck, an automatic pipe threader, other labor and time-saving devices. Competition is too keen, skilled labor too high to permit of any unnecessary waste.

But are your materials helping you to reduce your installation costs, helping you to quote a lower price on contracts through additional time saved and freedom from the troublesome call-backs which always cut into your profits?

You probably use a good many valves. Wouldn't you like to get hold of a line of valves which would save you five minutes for each one installed, and save you the time and money wasted in replacements due to faulty materials? It seems like a lot to ask of a valve, but Ohio Brass valves will do all these things because they have always been designed and made with your problems in mind, and have always been expected to give more than ordinary valves. Just try a few on your next job and remember that five minutes saved in installation time lowers the cost of the valve 15% which of course is your saving.

Ohio Brass Company
Mansfield, Ohio
1077V

Ohio Brass Co.

NEW YORK PITTSBURGH PHILADELPHIA CHICAGO ATLANTA BOSTON CLEVELAND ST. LOUIS LOS ANGELES WM. P. HORN CO: SAN FRANCISCO SEATTLE

PORCELAIN INSULATORS
LINE MATERIALS
RAIL BONDS
CAR EQUIPMENT
MINING MATERIALS
VALVES

Hoffman-Economy Vacuum Pumps

JET TYPE VACUUM PRODUCER

Insures Efficient Service Even With Dirty Water

Because the vacuum producer in Hoffman - Economy Pumps is of the jet type, the unit is thoroughly protected from damage caused by the presence of dirt or scale in the return mains.

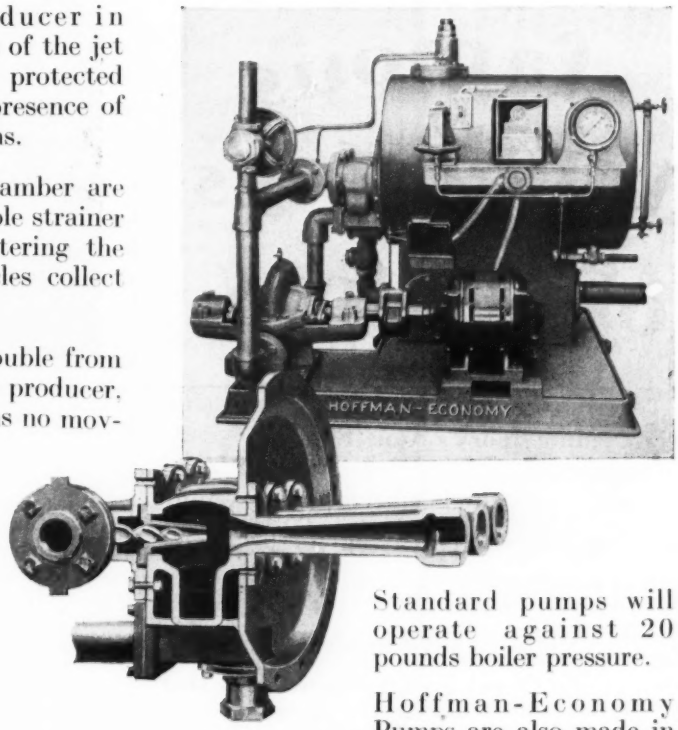
The strainer and sediment chamber are in combination. The removable strainer prevents heavy dirt from entering the pump, while the small particles collect in the sediment chamber.

A further safeguard against trouble from this source is in the vacuum producer, which is of the jet type and has no moving parts to wear out or score.

Wherever a unit is required for removing air from heating systems and returning condensation to the boiler, Hoffman-Economy Pumps provide efficient and dependable service.

They can handle extremely hot water, are capable of pulling a high vacuum and there is no danger of water over-flowing to floor even in event of current electric failure.

Location of return inlet and float switch close to floor reduces pits and lift fittings to a minimum.



Standard pumps will operate against 20 pounds boiler pressure.

Hoffman-Economy Pumps are also made in other types: Horizontal Condensation Pumps, Reciprocating Pumps, Vertical Underground Pumps and Air Line Vacuum Pumps.

All units are sturdily constructed, mounted on heavy cast iron base and equipped with motors of standard make and size. Write for catalogue and complete information.

ANOTHER NEW PRODUCT
HOFFMAN MOTO-HEATERS

Hoffman Moto-Heaters are an improved type of unit heater that provide maximum efficiency at lowest cost per B. T. U., and are guaranteed for any operating pressure up to 200 pounds. Furnished with Super-Fin heating surface and made in both suspended and floor mounted styles, in a complete range of sizes. Write for catalogue.

Hoffman Specialty Company, Inc., Waterbury, Conn.

Hoffman Specialty Company, Inc.
Dept. X-17, Waterbury, Conn.
Please send catalogue on:

.....Hoffman-Economy Pumps

.....Hoffman Moto-Heaters

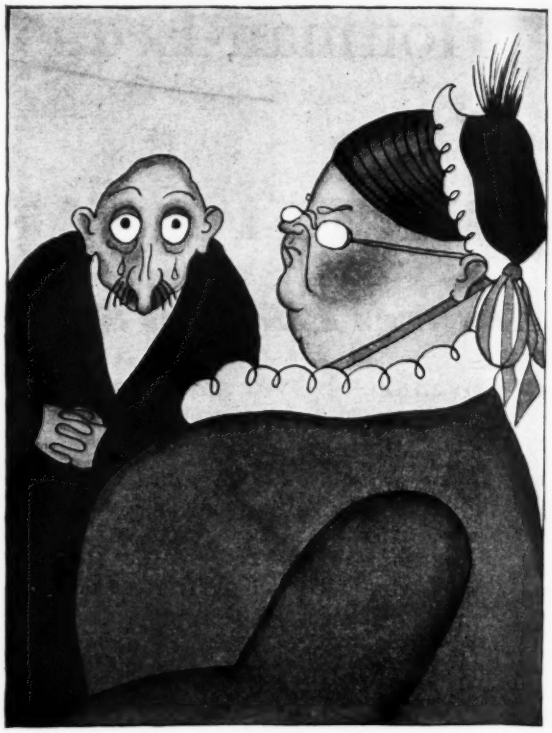
Name.....

Street.....

City..... State.....

By .....

famous dumb guys of history



This is Arthur Booey's Aunt Emmy.

For twenty years she has been paying Arthur board, but now she is leaving the premises, never to return.

It is all because of Arthur Booey's old, cramped, antique toilet. Aunt Emmy warned him that either it or she would go. She told him she was tired of its howls and snorts. She said she wanted in its place a gleaming white, scientifically-designed Improved Madera.* But Arthur thought she was only bluffing.

Now there will be no boarder at the Booey homestead. Aunt Emmy is off to her daughter-in-law's, where cleanliness and comfort are appreciated.

*The Improved Madera has a very large bowl, completely covered with water, below a long, comfortable, soil-proof seat. And because it has an unusually large trap-way and powerful, yet quiet, siphonic flushing it disposes instantly of all debris, even the modern sanitary pad.

In addition to the Improved Madera at $85, America's finest, most modern toilet, Maddock also offers the Madbrook at $50 and the Maderno at $35. The Madera and Madbrook have split-proof white seats. All have Durock bodies, and large bowls and seats. All are unusual values for the money. and the plumber who carries the Madera at $85, as well as the Madbrook and Maderno, is able to compete for all the business in his community with modern elongated closets.

THOMAS MADDOCK'S SONS POTTERY
Division of Standard Sanitary Mfg. Co.
TRENTON, N. J.

This is

straight,

Mr. Plumber!

YOU have in your hands—TODAY—one of the best business-building opportunities ever made available to you.

The product itself not only makes you a nice profit at the time the sale is made—but on top of that may net your shop—and you—a continuous profit as long as it's in use.

The reason it does—and can do this—is due to the extraordinary good will this heater builds. It gives your customers a new standard of satisfaction—indefinitely; it stirs their enthusiasm to the point where they pridefully talk about it to their friends, and show it off just as they would a beautiful automobile.

This product is the Hotstream **SIDE ARM TYPE** Automatic Storage Heater!

It's built to outperform any other type heater on the market. Its simple design and engineering perfection make that feature a positive reality.

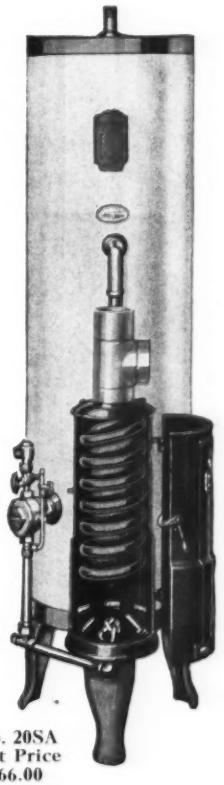
A SIDE ARM heater heats *clean* water because it is drawn from above the sediment line. There's no delay in having **HOT WATER** because the water passes through heated coils where heating action is quick and positive, directly to the top of the tank. Long tank service is assured because there is no fire, nor corrosive gases, in direct contact with the tank. The only thing that might possibly have to be replaced in the distant future is the coil—which is neither bother nor expense worth speaking of.

If you're in business to make more money this year—next year—and all the years to come—don't miss the opportunity you have with **HOTSTREAM SIDE ARM AUTOMATIC STORAGE HEATERS.** Begin today. Sit down right now and write for the details of the **HOTSTREAM**—the Side Arm heater with the many new exclusive features, advanced improvements—and surprising price!

THE HOTSTREAM HEATER CO.

"Makers of Heaters that Heat"

CLEVELAND, OHIO



No. 20SA
List Price
$66.00
Complete

HOTSTREAM
AUTOMATIC STORAGE
HEATERS

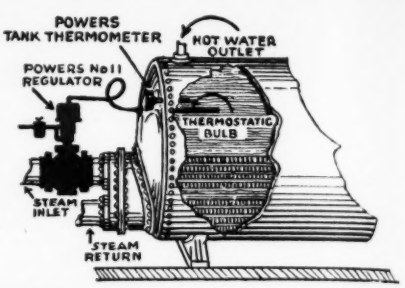
TANK REGULATORS

THE PALMOLIVE BUILDING, CHICAGO

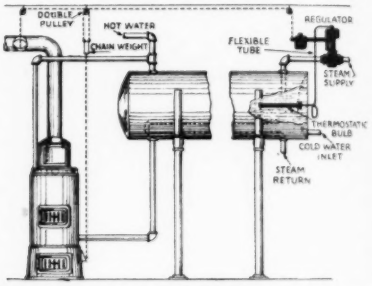
Architects: HOLABIRD & ROOT

Plumbing Contractor: M. J. CORBOY CO.

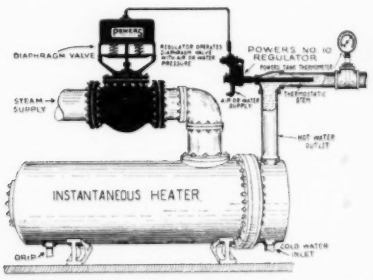
The hot water heaters in this prominent building are controlled by Powers Regulators. Long life — Dependable control — Prompt and intelligent service by engineers in 38 cities—these are some of the reasons for the popularity of Powers products.



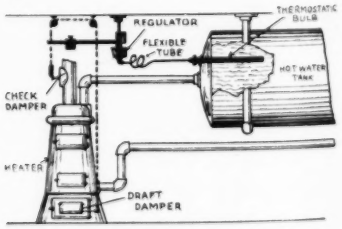
The Powers No. 11 Regulator applied to steam heated hot water tank. Self operating—accurate and durable. *Write for Bulletin No. 2035.*



The Powers No. 12 Regulator for controlling steam coil and auxiliary heater. *Write for Bulletin No. 2035.*



The Powers No. 10 Regulator operated by either compressed air or water pressure for control of large valves, swimming pool heaters, etc. *Write for Bulletin No. 2035.*



The Powers No. 13 Regulator for hot water tank heaters and garbage burners. *Write for Bulletin No. 2035.*

THE POWERS REGULATOR COMPANY

35 years of specialization in temperature control

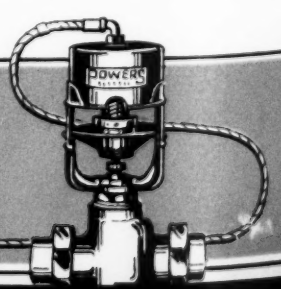
General Eastern Office
137 East 46th St., New York City

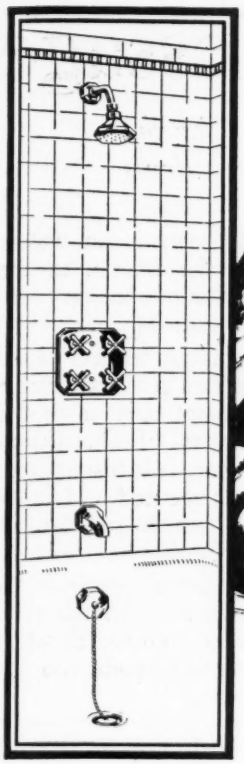
General Offices and Factory
2720 Greenview Ave., Chicago, Ill.

Canadian Powers Regulator Co., Ltd.
106 Lombard St., Toronto, Ont.

Offices in 35 other cities — See your telephone directory

POWERS





Another Way Kohler Helps Plumbers Make More Money

Compact and Modern

Here is the latest improved member of the Kohler line of plumbing brass—a one-piece metal control panel for shower and bath.

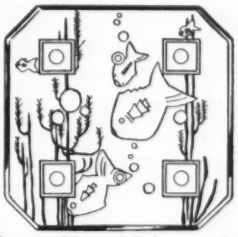
All four valves are located within a four-inch area, mounted in a one-piece yoke. The entire unit fits into a single tile guide.

Installation is easier and faster. Instead of four valves, there is but one unit to fit into the wall. The saving in time and expense is particularly evident when the wall is a tiled one.

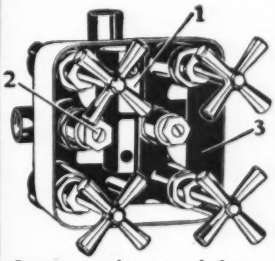
The outer panel, which is of metal—chromium plated—can be furnished engraved with an appropriate design, coat of arms, or other distinctive mark.

The outer panel can be removed by loosening two screws, thus giving access to the valves. These valves are quick acting, have swivel discs, integral stops. The seat is a part of a renewable unit, easily replaced if worn. Each fitting is carefully tested under water pressure.

This improved fitting gives positive water-control, doing away with mixing valves, diverting valves, and other combinations. And it is of Kohler quality—like all Kohler brass, and like Kohler enameled iron and vitreous china. It is another fine example of the better design and better manufacture—found in all Kohler products—that helps plumbers *make more money*.



Removable metal plate can be plain or engraved with some interesting, distinctive design



One-piece yoke exposed, showing (1) socket wrench furnished with fitting: (2) integral stops: (3) tile guide

KOHLER CO., *Founded 1873*, Kohler, Wis. · *Shipping Point*, Sheboygan, Wis. · *Branches in Principal Cities*

KOHLER OF KOHLER

MEMBER PLUMBING & HEATING INDUSTRIES BUREAU T. E. B.

PLUMBING FIXTURES

LOOK FOR THE KOHLER TRADE MARK ON EACH FIXTURE

The Measure of Your Message

Written for the benefit of those who purchase white space for the purpose of advertising their wares or the wares of their clients

A GLANCE at a few old-fashioned standards discloses such examples as a "stone" for the measure of weight, a "hand" as the measure of height, and a "barley-corn" as a measure of length.

That these are from a primitive makeshift method of establishing units is shown by their origin. The "stone" was based on a conveniently sized actual stone that was taken as a standard. The "hand" as measured by the palm of different men varied probably as much as three inches. The "barley-corn" was an approximation of the length of a grain and naturally inaccurate.

Not Uniform

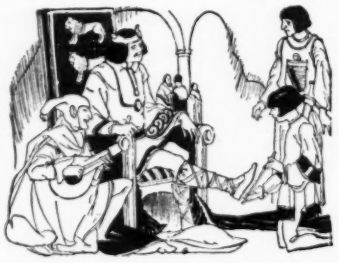
The "foot" was once the length of the foot of the ruling chief of a tribe and when a new chief arose the "foot" was altered to equal that of the new ruler. Centuries after the origin of these units it became necessary for purposes of uniformity to adopt a legal, standard foot and pound which were put in safekeeping. From these, many identically equal measuring units were made.

"The most progressive Advertisers and Agencies decide by A. B. C. Reports"

Thus arose the accurately defined unit of measure, which enabled traders and merchants to buy and sell with exact knowledge of the quantity of goods involved in their business transactions.

Accuracy Essential

How many merchants today would buy lumber measured by



a "foot" which might be ten inches or thirteen inches long? Or coal measured by a "stone" the exact size of which is not known?

The first essential for successful buying and selling is a standard invariable unit of measurement. Not only in buying lumber and coal but in buying circulation for advertising purposes. To define this unit and measure the quantity of circulation in unit terms for the Advertiser and Advertising Agency, thus putting space buying on a scientific basis, is the function of the Audit Bureau of Circulations.

What Are A. B. C. Reports?

The Audit Bureau of Circulations is a co-operative association of the leading Advertisers, Advertising Agencies and Publishers of Canada and the United States. It was organized in 1914 for the purpose of auditing and verifying circulation information submitted by the Publishers, and disseminating the results of these investigations to advertisers in the form of A. B. C. reports.

A. B. C. Reports show "How many copies were sold"

A staff of over fifty auditors is working in the field daily auditing the statements of publisher members. Each man is an expert trained by the Bureau in the special methods necessary for publication auditing.

The circulation reports issued by the Bureau give exhaustive information not only as to the exact Quantity of Circulation but also Where it is distributed, How it was secured and other Data upon which to base an estimate of Quality.

A. B. C. service provides in easily accessible form complete Facts on almost all worth-while publications of Canada and the United States.

The Value of Facts

Information such as that furnished by A. B. C. reports is essential. Not to take advantage of this service is to lay out a Campaign with dull tools — to work in the dark.

A. B. C. Reports show "Where the copies were distributed"

No Substitute for Facts

There is no substitute for Facts. It is often asserted that the figures of the Post Office statements submitted to the Government or other unverified statements are sufficiently reliable, but this is not the case. The Total Net Paid figures of these statements may be true in the eyes of the publisher submitting them but they are not comparable to A. B. C. figures because "they are not in the same language."

Almost every name on the mailing list of the non-A. B. C. publisher is considered a "subscriber" for statement purposes,

whereas only those persons who pay at least 50% of the subscription price and are not in arrears over six months are counted as bona fide subscribers on an A. B. C. report.

Surely it would pay the buyer of space to ignore Post Office figures or any other unverified data and base his decision on verified A. B. C. information.

Facts for the Advertiser

The information required by the A. B. C. forms covers data which the Advertiser and his Agency must have to place Campaigns intelligently. By referring to these reports, the user has at his disposal verified data covering all the vital questions that arise when considering a publication as an advertising medium. A. B. C. reports give impartial facts which, when used properly, enable the Advertiser to buy 100 cents' worth of advertising for every dollar spent.

The wise business man knows that only by employing the most up-to-date methods and equipment can effective results be assured. The careful Advertiser who uses A. B. C. reports is utilizing the most important modern working tools available and is therefore laying a better foundation for success in his campaigns.

A. B. C. Reports show "How Subscribers were obtained"

A. B. C. reports set forth the facts on circulation in a manner available no other way.

The Modern Standards

An advertiser may possibly carry on a successful campaign by using antiquated, haphazard methods of buying space without the full facts contained in A. B. C. reports. But every buyer of advertising is honor bound to analyze the distribution of publications and scientifically choose those that will show the *greatest* returns. Developing a profitable business from a campaign is not enough—one should be assured by analysis of A. B. C. reports that all possible profit is being secured in the territory covered.

Change Wrought by A. B. C.

The A. B. C. has introduced standardized methods and put Uniformity and Certainty into what was hitherto a chaos of guesswork. It is performing a service for Advertisers and Agents which is of real value in saving hundreds of thousands of dollars formerly wasted on unprofitable, fictitious circulation. The expense of digging out the same information would be prohibitive if attempted by these companies themselves. The most economical method is the A. B. C. co-operative way by which the expense is spread over all parties interested.

Nearly all the prominent Advertisers, Agencies and Publishers recognize the importance of the Bureau. It is to the few that still do not realize the business value of A. B. C. Membership that this is addressed.

Co-operation Desired

The Bureau, in its constructive work designed to place all buying and selling of advertising space on the business-like basis of full measure for every dollar, can justly expect the support of those companies who benefit by this work. The co-operation of every reputable Publisher, Advertiser and Agency is desired. They should be represented in the conferences of their respective divisions of this association and help to determine the direction of development.

The A. B. C. Certificate is a symbol of high ideals in business

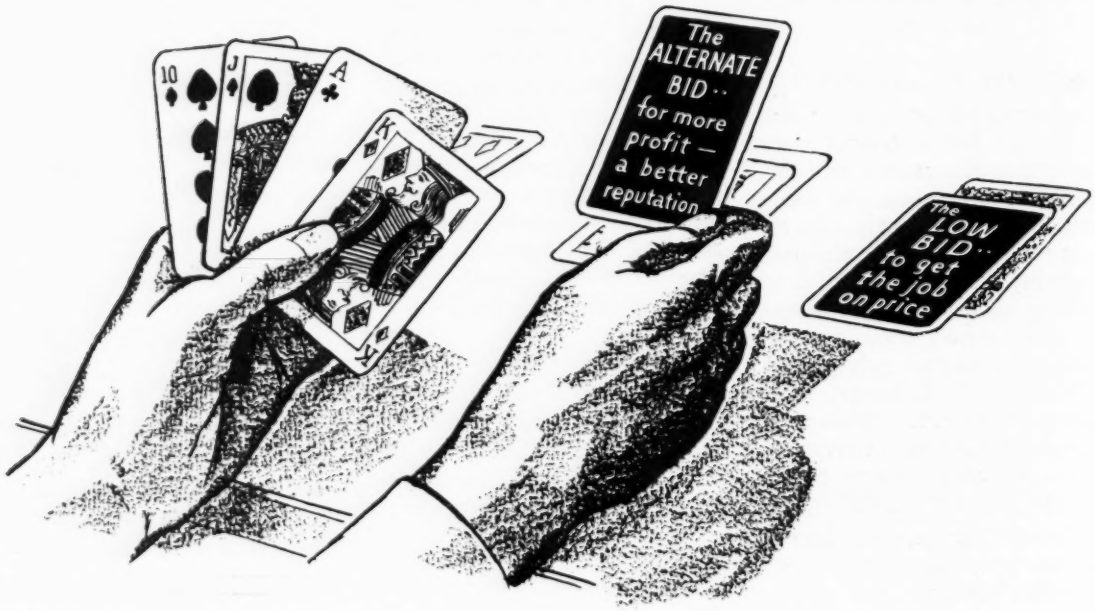
Unanimous Support

The continued success and advancement of the A. B. C. idea means continued progress for the Agencies and Advertisers profiting by the Circulation Certainty brought about by the A. B. C.

With such interdependence of interest it is reasonable to hope that those publishers, advertisers and advertising agents not now belonging to the A. B. C. will soon decide to add their names to the roll of this organization which is successfully doing for them a service.

In the Ten Billion copies of A. B. C. publications of Canada and the United States distributed annually, an Advertiser can purchase Space with the assurance that he will get full value for each Dollar expended, if he or his responsible officers or agents will study the Facts and Figures given in Audit Bureau of Circulations Reports. Domestic Engineering is a member of the A. B. C. and would be pleased to submit a copy of its latest report.

The Alternate Bid *is Your Trump Card!*



THEY can't shut you out by playing a lower figure on cheaper work and material if you follow the neat little system of Alternate Bids.

An alternate bid is one that a contractor offers of his own accord, along with the one required for price competition. You, for example, may suggest Byers Pipe, at slight additional cost.

If the job is awarded on price alone, well and good! You have a low bid in—as low as you feel justified in making it, for the most ordinary pipe. You take your chance, along with competitors, on that basis. But also, your alternate bid is in, showing that there are other things to consider besides price—lasting materials, thorough workmanship, long, dependable service—and that they may be had for an extra trifle.

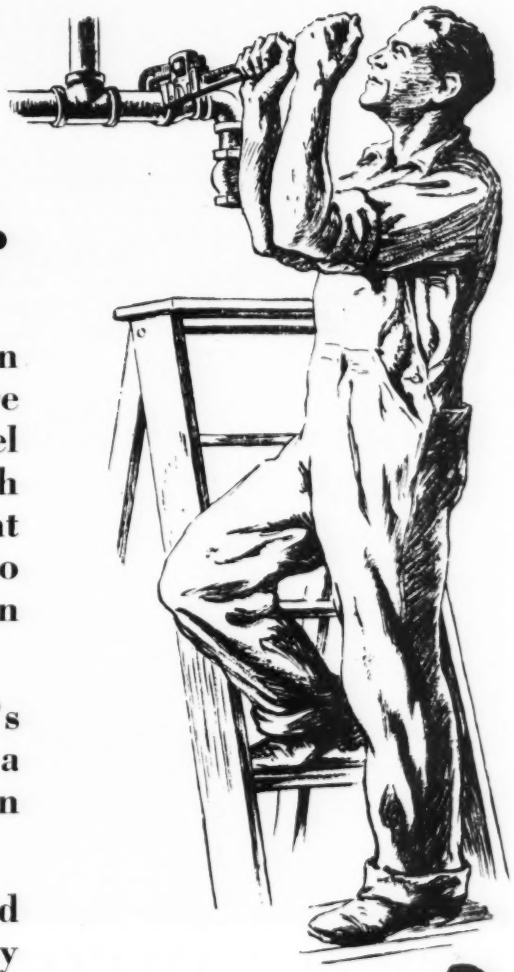
People are surprised to learn that five to eight per cent will cover all the difference between the cheapest pipe and genuine wrought iron with the Byers guarantee. They are willing to pay that small premium, for they know Byers will give them double service. **The man who shows them this economy is pretty likely to get the business.**

Suitable blanks for Alternate Bids have been prepared by the A. M. Byers Company, and a supply is furnished to any contractor on request. They fetch many a contract.

A. M. BYERS COMPANY
Established 1864 Pittsburgh, Pa.
Distributors in All Jobbing Centers

BYERS PIPE
GENUINE WROUGHT IRON

Strength *Counts as a Safety Factor*



Strength counts as a safety factor in a pipe wrench — and that is where TRIMO has them all beat. The steel handle of a TRIMO pipe wrench receives a scientific heat treatment which gives it strength enough to stand the hardest strain a man can put on it.

You will never tax TRIMO's strength to the limit. There's a reserve there for your protection and safety.

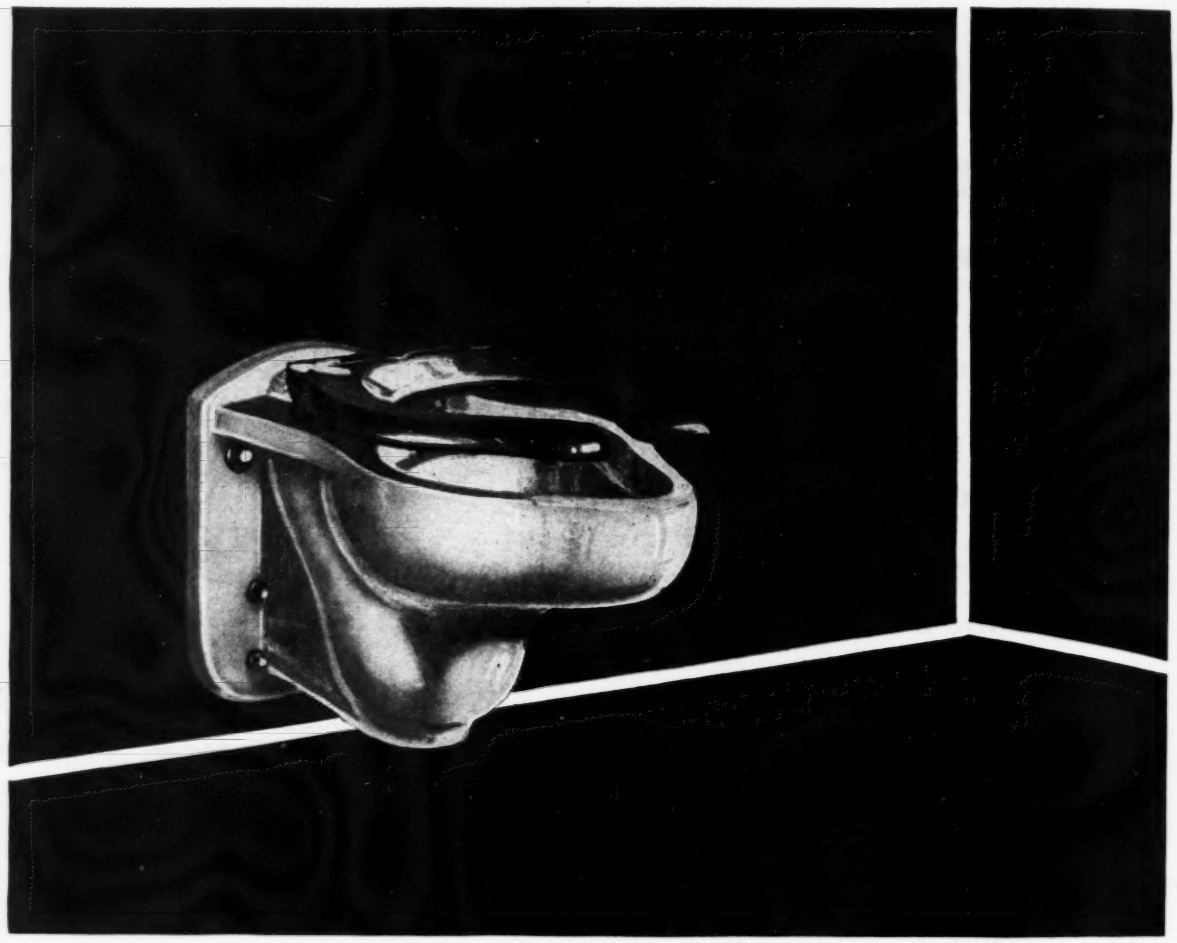
If you want a strong wrench and one that will last for years, buy all-steel TRIMO.

TRIMO Pipe Wrench

All Steel for Strength

Replaceable Jaws for Lifetime Wear

Made by Trimont Mfg Co., Inc.
Roxbury (Boston), Mass.

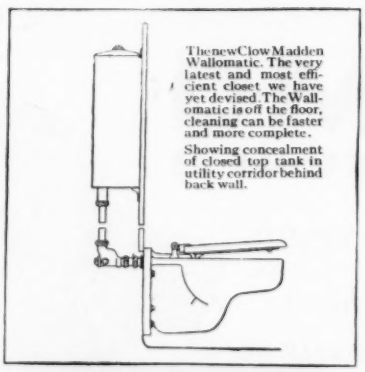


NEVER FAILED...*because someone forgot...*

Clow Madden Automatic Closets never have and *never will* . . fail to flush because someone forgot.

Automatically . . immediately . . a cleansing flood cleans the bowl, from top through trap.

Clow Madden Automatics "carry on" for the life of the building. Records prove them still "young" after 25 years' steady service.



The new Clow Madden Wallomatic. The very latest and most efficient closet we have yet devised. The Wallomatic is off the floor, cleaning can be faster and more complete.

Showing concealment of closed top tank in utility corridor behind back wall.

Record No. 101

After 27 years of high school service at Rock Island, Illinois —29 Clow Madden Automatics are ready for as many more.

The simply-built, stout-hearted Madden Valve . . wastes no water. Cost records are small, as service records are large.

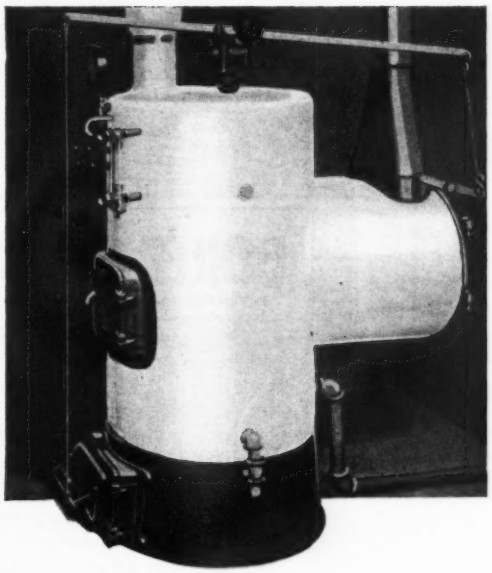
Don't let forgetfulness leave unflushed closets . . and filthy germs to hatch. Health is too precious to place in the hands of a play-thoughtful child . . a hurried workman . . a careless transient.

James B. Clow & Sons, 201-299 N. Talman Avenue, Chicago

CLOW MADDEN AUTOMATIC

Forty-Eight Styles, Heights and Types to Meet Your Requirements

HEATING LOGIC



What are the things which above all others, make home owners satisfied with their heating systems?

Quick heat, when heat is needed, and low fuel bills.

What is the principal element in determining the speed with which heat is developed in the system, and the size of fuel bills?

THE BOILER,—the element which takes the heat liberated from the fuel and transfers it to the heating system.

What is the most valuable business asset for the heating contractor?

Satisfied owners.

What then should heating contractors do to insure owner satisfaction every time they install a heating plant?

Install the BOILER that will "pick-up" the heating load the fastest. This boiler will, of course, also be the most efficient and hence the most saving of fuel.

What boiler is noted for its exceptionally quick "pick-up" of the heating load?

The FITZGIBBONS STEEL HEATING BOILER,—widely favored also because of its great strength, durability, easy installation and maintenance.

4 4 4

No questioning the logic in the foregoing. However, those Heating Contractors who do not KNOW the FITZGIBBONS STEEL BOILER may rightly ask for proof of the final statement.

All we ask is the opportunity of furnishing the proof. The FITZGIBBONS Catalog tells the story clearly and convincingly.

Write for a copy—now

FITZGIBBONS BOILER CO., *Inc.*

570 SEVENTH AVENUE :: NEW YORK, N. Y.

Works: Oswego, N. Y.

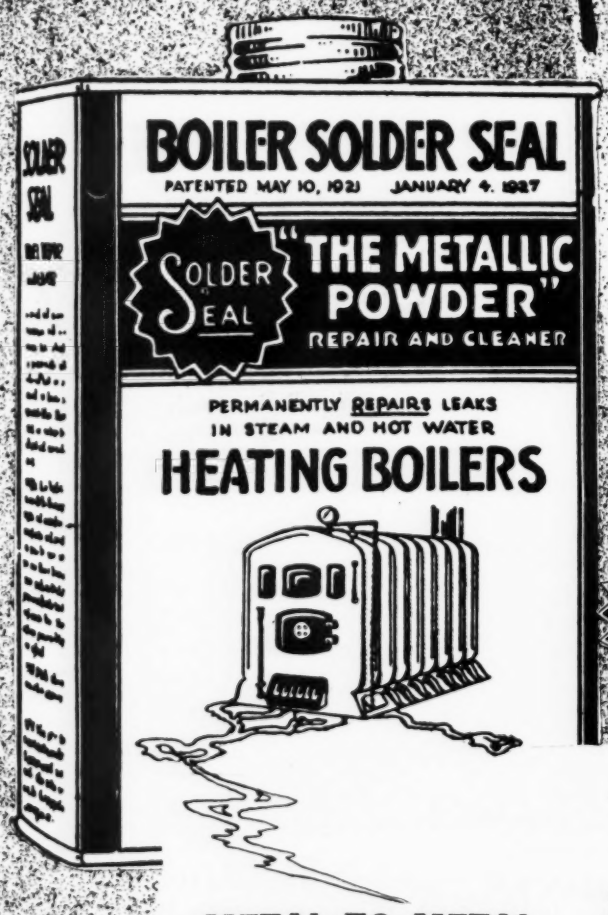
BRANCHES AND REPRESENTATIVES

Baltimore, Columbia, S. C., Detroit, Pittsburgh, Boston, Buffalo, Grand Rapids, Pittsfield, Philadelphia, Richmond, San Antonio, Reading, Rochester, Syracuse, Winston-Salem

The sign of the best in steel boiler heat.

FITZGIBBONS STEEL HEATING BOILERS

The Sure Way



TRADE MARK SOLDER SEAL

METAL TO METAL CONTACT

The secret of a real boiler repair is Metal to Metal Contact. Boiler Solder Seal gives you this positive method and does it in a way that causes you no extra trouble. Simply put Boiler Solder Seal in the boiler and it will do the rest.

Now you can repair boiler leaks quickly, easily and permanently. Solder Seal is a scientifically prepared powder that once being applied to the boiler automatically fills up the leaks and becomes so hard that it will withstand all pressures the boiler itself can undergo.

It is not necessary to shut down the boiler to use Solder Seal.

Try a Can

NOT A LIQUID

RADIATOR SPECIALTY CO.

CHARLOTTE N. C.

BOILER SOLDER SEAL

"THE METALLIC POWDER"

It's as important to put Quality underground as above ground

(AND MAYBE MORE IMPORTANT)

WHEN you install a beautiful bathroom or kitchen you are proud of your work, make more money than if you used questioned materials of unknown identity—and you make a life-long friend and customer. Why not apply the same logic to your septic tank installations? When you make a Kaustine installation you can be proud not only of your work but of the Kaustine equipment as well. You know, and your customer knows, that it is the most widely known and highly respected of all septic tanks—that it ranks alongside of the highest grade plumbing fixtures that you put above the ground, and costs little, if any, more than ordinary cheap steel tanks.

Don't take chances of ruining your whole installation—and your reputation as well—by installing a cheap tank. Put under the ground the same quality you put above the ground. The safe way is to install only genuine Kaustine Armco Ingot Iron Septic Tanks.

Kaustine Septic Tanks are designed to provide full capacity for septic action, electro welded throughout and made only of genuine Armco Ingot Iron—a product to stake your reputation upon.

An Engineering Department of expert sanitation engineers is at your service at all times. Write us for the complete Kaustine story. It will be placed in your hands without obligation.

Kaustine

SEPTIC TANKS

KAUSTINE COMPANY, INC., MAIN ST., PERRY, N. Y.

SPECIAL NOTICE

to

Plumbing and Heating Contractors

You can secure without charge, upon request, catalog sheets of any or all of the manufacturers listed below for use in loose-leaf binder.

These sheets are reprints of pages appearing in "Domestic Engineering Catalog." They conform to the standards adopted by the plumbing and heating industries as to page size, punching and weight of stock. If interested, write Domestic Engineering, 1900 Prairie Avenue, Chicago, on your letterhead giving the names of the concerns whose loose sheets you desire.

Domestic Engineering handles the Speedlok binder which is especially designed to hold standardized sheets. The price of the binder is $3.00.

Abendroth Bros. ... Port Chester, N. Y.
Absolute Con-Tac-Tor Corp. ... Elkhart, Ind.
Acme Asbestos Covering & Flooring Co. ... Chicago, Ill.
Acme Frost Proof Closet Mfg. Co. ... Baltimore, Md.
Acme Refining Co., The ... Cleveland, Ohio
Alamo Engine Co. ... Hillsdale, Mich.
Alamo Heater Co. ... Chicago, Ill.
Alberene Stone Co. ... New York City
Alliance Tank Co. ... Alliance, Ohio
American Beauty Stove Co. ... Erie, Pa.
American Brass Co. ... Waterbury, Conn.
American District Steam Co. ... North Tonawanda, N. Y.
American Manganese Bronze Co. ... Holmesburg, Pa.
American Pipe Tool Co. ... Chicago, Ill.
American Radiator Co. ... New York City
American Steam Pump Co. ... Battle Creek, Mich.
Armstrong Bros. Tool Co. ... Chicago, Ill.
Armstrong Mfg. Co. ... Bridgeport, Conn.
Artisan Metal Products Co. ... Charlestown, Mass.
Atchison Specialty Mfg. Co. ... Atchison, Kans.
Atkins Mfg. Co., H. C. ... St. Louis, Mo.
Atlantic Tubing Co. ... Providence, R. I.
Atlas Brass Foundry Co. ... Columbus, Ohio
Automatic Gas Steam Radiator Co. ... Pittsburgh, Pa.

Badger & Sons Co., E. B. ... Boston, Mass.
Ballantine, B. D. ... Fitchburg, Mass.
Baltimore Valve Corp. ... Baltimore, Md.
Barnes Tool Co., The ... New Haven, Conn.
Barrett Mfg. Co., James ... Boston, Mass.
Bay Ridge Specialty Co., Inc. ... Trenton, N. J.
Bead Chain Mfg. Co. ... Bridgeport, Conn.
Beardsley & Wolcott Mfg. Co., The ... Waterbury, Conn.
(Successors to Berbecker & Rowland Mfg. Co.)
Beaton & Cadwell Mfg. Co., The ... New Britain, Conn.
Beaton & Corbin Mfg. Co., The ... Southington, Conn.
Beilman Water Heater Co., Inc., The ... Buffalo, N. Y.
Bell & Gossett Co. ... Chicago, Ill.
Beneke Mfg. Co. ... Chicago, Ill.
Benson Co., Inc., Alex R. ... Hudson, N. Y.
Bignall Co., The ... Medina, N. Y.
Blue Seal Chemical Co. ... Roselle, N. J.
Boosey Mfg. Co., Norman ... Detroit, Mich.
Borden Co. ... Warren, Ohio
Bowlus Mfg. Co., The ... Springfield, Ohio
Boyle & Co., Inc., C. A. ... Chicago, Ill.
Bradley Washfountain Co. ... Milwaukee, Wis.
Brunswick-Kroeschell Company ... Chicago, Ill.
Buckeye Pump & Mfg. Co. ... Columbus, Ohio
Buffalo Meter Co. ... Buffalo, N. Y.
Burkert Co., Inc., R. N. ... Trenton, N. J.
(Formerly Trenjer Specialty Co.)
Burnham Boiler Corp. ... Irvington, N. Y.
Butler Mfg. Co. ... Minneapolis, Minn.
Butler, Thos. F. ... Lorain, Ohio

Cabco Iron Works, Inc. ... Gowanda, N. Y.
Capitol Brass Works ... Detroit, Mich.
Carty & Moore Engineering Co., Inc. ... Detroit, Mich.
Case & Son Mfg. Co., W. A. ... Buffalo, N. Y.
Celina Mfg. Co. ... Celina, Ohio
Central Foundry Co. ... New York City
Central Radiator Co. ... New York City
Central Specialty Co. ... Detroit, Mich.
Chamberlain Co., The ... Pittsburgh, Pa.
Chase Brass & Copper Co., Inc. ... Waterbury, Conn.
Chemical Toilet Corp. ... Syracuse, N. Y.
Chicago Faucet Co., The ... Chicago, Ill.
Chicago Flexible Shaft Co. (Sprinkler Division) ... Chicago, Ill.
Chicago Granitine Mfg. Co. ... Chicago, Ill.
Chicago Pipethread Machine Co. ... Racine, Wis.
Chicago Pump Co. ... Chicago, Ill.
City Brass Corp. ... New York City
Cleveland Brass Mfg. Co., The ... Cleveland, Ohio
Cleveland Heater Co. ... Cleveland, Ohio

Columbia Radiator Co. ... McKeesport, Pa.
Comet Radiator Co. ... Philadelphia, Pa.
Commonwealth Brass Corp. ... Detroit, Mich.
Compound Injector & Specialty Co. ... Chicago, Ill.
Conemaugh Iron Works ... Latrobe, Pa.
Connors Paint Mfg. Co., Wm., The ... Troy, N. Y.
Consolidated Ashcroft Hancock Co., Inc. ... New York City
(Division of Manning, Maxwell & Moore, Inc.)
Corcoran Mfg. Co. ... Cincinnati, Ohio
Covert Company, H. W. ... New York City
Coyne & Delany Co. ... Brooklyn, N. Y.
Crampton-Farley Brass Co. ... Kansas City, Mo.
Crist & Schilken Co. ... Pittsburgh, Pa.
Crocker Chair Co. ... Sheboygan, Wis.
Croll & Son, Jesse G. ... Philadelphia, Pa.
Crown Die & Tool Co. ... Chicago, Ill.
Curtin Valve Co., A. F. ... Medford, Mass.
Curtis & Curtis Co., The ... Bridgeport, Conn.

Dahlquist Mfg. Co. ... South Boston, Mass.
Dail Steel Products Co. ... Lansing, Mich.
Dargent, Charles ... Brooklyn, N. Y.
Dart Mfg. Co., E. M. ... Providence, R. I.
David-Franklin Co. ... Irvington, N. J.
Davis Engineering Corp. ... New York City
De-Bar Co. ... Brooklyn, N. Y.
Decatur Pump Co. ... Decatur, Ill.
Dececo Co., The ... Boston, Mass.
Delaware Tool Co. ... Wilmington, Del.
d'Este Co., Julian ... Boston, Mass.
Detroit Lubricator Co. ... Detroit, Mich.
Dick Brothers, Inc. ... Reading, Pa.
Dixie Flashing Co., Inc. ... Birmingham, Ala.
Dole Valve Company ... Chicago, Ill.
Donnelly Mfg. Co. ... Malden, Mass.
Duro Wood Products, Inc. ... Capac, Mich.

Eagle-Picher Lead Co., The ... Cincinnati, Ohio
Eastern Foundry Co., The ... Boyertown, Pa.
Ebinger Sanitary Mfg. Co., D. A. ... Columbus, Ohio
Economy Heater Co. ... Chicago, Ill.
Economy Pumping Machinery Co. ... Chicago, Ill.
Eljer Co. ... Ford City, Pa.
Elkay Mfg. Co. ... Chicago, Ill.
Elkhart Foundry & Machine Co. ... Elkhart, Ind.
Elkhart Iron Works ... Elkhart, Ind.
Emerson & Sack, Inc. ... Boston, Mass.
Enterprise Brass Works ... Muskegon, Mich.
Erie Tool Works, The ... Erie, Pa.
Estabrook's Sons, R. ... South Boston, Mass.
Ever-Ready Gas Heater Valve Co. ... Detroit, Mich.
Excelsior Leather Washer Mfg. Co. ... Rockford, Ill.
Excelso Products Corp. ... Buffalo, N. Y.
Exeter Brass Works ... Exeter, N. H.

Fairbanks Engineering Co. ... Worcester, Mass.
Federal Radiator Co. ... Zanesville, Ohio
Ferguson & Lange Foundry Co. ... Chicago, Ill.
Fischer Spring Co., Chas. ... Brooklyn, N. Y.
Flagg & Co., Inc., Stanley G. ... Philadelphia, Pa.
Florence Stove Co. ... Boston, Mass.
Forest Mfg. Co. ... Hickory, N. C.

General Ceramics Co. ... New York City
Gerard Mfg. Co. ... Dickson City, Pa.
Gerstein & Cooper ... South Boston, Mass.
Gerstein & Sons, H. ... South Boston, Mass.
Gleockle, Jr., A. F. ... Rochester, N. Y.
Globe Brass Mfg. Co. ... Cleveland, Ohio
Goulds Pumps, Inc. ... Seneca Falls, N. Y.
Grabler Mfg. Co. ... Cleveland, Ohio
Grand Haven Brass Foundry ... Grand Haven, Mich.
Greenfield Tap & Die Corp. ... Greenfield, Mass.
Grinnell Co., Inc. ... Providence, R. I.

Haas Co., Philip ..... Dayton, Ohio
Hajoca Corporation ..... Philadelphia, Pa.
Hamburg Boiler Works, Inc ..... Hamburg, Pa.
Hanson Brothers Scale Co ..... Chicago, Ill.
Hays Mfg. Co ..... Erie, Pa.
Healey Brass Foundry Co., Peter ..... Evansville, Ind.
Healy-Ruff Company ..... St. Paul, Minn.
Heap & Sons, Wm ..... Grand Haven, Mich.
Heller Bros. Co ..... Newark, N. J.
Hercules Chemical Co ..... New York City
Hermetik Co ..... Philadelphia, Pa.
Hetzel, J. G., Estate of ..... Newark, N. J.
Hindley Mfg. Co ..... Valley Falls, R. I.
Hoffman Specialty Co ..... Waterbury, Conn.
Hollands Mfg. Co ..... Erie, Pa.
Holyoke Heater Co ..... Holyoke, Mass.
Hotstream Heater Co ..... Cleveland, Ohio
Hudson Brass Works, Inc ..... Brooklyn, N. Y.
Hunt & Son, C. B ..... Salem, Ohio
Hutchison Regulator Sales Corp ..... New York City

I-X-L Pump & Mfg. Co., Inc ..... Philadelphia, Pa.
Ideal Furnace Co ..... Detroit, Mich.
Ideal Pump Co ..... Detroit, Mich.
Illinois Engineering Company ..... Chicago, Ill.
Inland Iron Works, Inc ..... Joliet, Ill.

J. R. S. Specialties Mfg. Co., Inc ..... Patchogue, N. Y.
Janette Mfg. Co ..... Chicago, Ill.
Jenkins Brothers ..... New York City
Johns-Manville Corp ..... New York City
Johnson Mfg. Co ..... Detroit, Mich.
Johnson-Washburn Co ..... Boston, Mass.
Jones Hollow Ware Co ..... Baltimore, Md.
Josam Mfg. Co ..... Cleveland, Ohio
Judd Co., H. L ..... New York City

Kahn & Co., H ..... Philadelphia, Pa.
Kainer & Co ..... Chicago, Ill.
Kaustine Co., Inc ..... Perry, N. Y.
Keeney Mfg. Co., The ..... Newington, Conn.
Kellogg Mfg. Co ..... Rochester, N. Y.
Kemoshyne Products, Inc ..... Philadelphia, Pa.
Kemp Mfg. Co., C. M ..... Baltimore, Md.
Kennedy Valve Mfg. Co ..... Elmira, N. Y.
Ketcham Mfg. Corp., G. M ..... Brooklyn, N. Y.
Kewanee Boiler Company ..... Kewanee, Ill.
Keystone Brass Works ..... Erie, Pa.
Keystone Pottery Co ..... Trenton, N. J.
Kieley & Mueller, Inc ..... New York City
King Union Co. Inc ..... Providence, R. I.
Kitson Co ..... Philadelphia, Pa.
Kleinert Rubber Co., I. B ..... New York City
Knott Mfg. Co ..... Tell City, Ind.
Kortick Manufacturing Co ..... San Francisco, Cal.
Kretschmer Mfg. Co ..... Dubuque, Iowa
Kupferle Foundry Co., John C ..... St. Louis, Mo.

Lavelle Rubber Co ..... Chicago, Ill.
Lawson Co., The F. H ..... Cincinnati, Ohio
Lawson Mfg. Co ..... Cleveland, Ohio
Leader Brass Foundry & Mfg. Co., The ..... Cleveland, Ohio
Leavitt Machine Co ..... Orange, Mass.
Lehman Sprayshield Co ..... Philadelphia, Pa.
Lehnert & Co ..... New York City
Leonard-Rooke Co ..... Providence, R. I.
Lewis Sanitary Tool Co ..... Quincy, Mass.
Liquid Veneer Corp ..... Buffalo, N. Y.
Lissberger & Son, Inc., Marks ..... Long Island City, N. Y.
Little Giant Mfg. Co ..... Minneapolis, Minn.
Luzerne Rubber Co., The ..... Trenton, N. J.
Lytton Mfg. Corp ..... Franklin, Va.

McAlear Mfg. Co., The ..... Chicago, Ill.
McCaffrey Mfg. Co ..... Chicago, Ill.
McCoy Mfg. Co., Inc ..... New York City
McDonnell & Miller ..... Chicago, Ill.
McGurrin Supply Co ..... Grand Rapids, Mich.
Malleable Iron Fittings Co ..... Branford, Conn.
Martin & Sons, H. P ..... Owensboro, Ky.
Marvel Machine & Brass Works ..... Cleveland, Ohio
Meneley-Diederich Co., Inc ..... Los Angeles, Cal.
Michigan Pipe Co ..... Bay City, Mich.
Milford Iron Foundry ..... Milford, Mass.
Milwaukee Valve Co ..... Milwaukee, Wis.
Minneapolis-Honeywell Regulator Co ..... Minneapolis, Minn.
Misener & Irving Mfg. Co., Inc ..... Syracuse, N. Y.
Modern Iron Works ..... Quincy, Ill.
Modine Mfg. Co ..... Racine, Wis.
Mohawk Septic Tank Co ..... Schenectady, N. Y.
Molby Boiler Co ..... New York City
Moore, F. J ..... Minneapolis, Minn.
Morton Mfg. Co ..... Chicago, Ill.
Muller, Edward ..... North Bergen, N. J.

Nash Engineering Co ..... South Norwalk, Conn.
Nason Mfg. Co ..... New York City
National Pipe Bending Co ..... New Haven, Conn.
National Steel Tank & Mfg. Co ..... Bradford, Ill.
Neptune Meter Co ..... New York City
Never Rust Co ..... Harrisburg, Pa.
Newark Brass Works ..... Newark, N. J.
Newark Brush & Scraper Co ..... Irvington, N. J.
New Britain Machine Co ..... New Britain, Conn.
Newbury Mfg. Co ..... Monroe, N. Y.
Newbury & Son, Jay H ..... Goshen, N. Y.
New York Air Valve Corp ..... New York City
New York Brass Foundry Co ..... New York City
Northern Indiana Brass Co ..... Elkhart, Ind.
Northwestern Chemical Co., The ..... Marietta, Ohio
Novelty Steam Boiler Works Co ..... Baltimore, Md.
Nustone Products Corp ..... Union City, N. J.
Nye Tool & Machine Works ..... Chicago, Ill.

O-E Specialty Mfg. Co ..... Milwaukee, Wis.
Ohio Brass Co ..... Mansfield, Ohio
Ohio Heater Co., The ..... Columbus, Ohio
Olsen, H. T ..... New York City

Paine Co ..... Chicago, Ill.
Para Rubber Co ..... Newark, N. J.
Paradine Mfg. Co ..... Erie, Pa.
Peerless Machine Co ..... Racine, Wis.
Penn Engineering Co., The ..... Philadelphia, Pa.
Perfection Stove Co ..... Cleveland, Ohio
Phenolic Products Corporation ..... Rockford, Ill.
Phillips Drill Co ..... Chicago, Ill.
Phoenix Brass Fittings Corp ..... Irvington, N. J.
Pierce, Butler & Pierce Mfg. Corp ..... New York City
Pittsburg Water Heater Co ..... Pittsburgh, Pa.
Plomb Tool Co ..... Los Angeles, Cal.
Plussco Co ..... Concord, N. H.
Polygon Products Co ..... Boston, Mass.
Porcela-Radax Co ..... Pittsburgh, Pa.
Portland Iron Works ..... Portland, Ore.
Powers Regulator Co ..... Chicago, Ill.

Quad Stove Mfg. Co., The ..... Columbus, Ohio
Quaker City Iron Works ..... Philadelphia, Pa.

Radiant Steel Products Co ..... Williamsport, Pa.
Radiator Specialty Co ..... Charlotte, N. C.
Randolph-Clowes Co., The ..... Waterbury, Conn.
Rathbun Products, Inc ..... Detroit, Mich.
Rawlplug Co., Inc., The ..... New York City
Reed Mfg. Co ..... Erie, Pa.
Reinhardt Mfg. Co., Edwin G ..... Cincinnati, Ohio
Rhode Island Fittings Co ..... Providence, R. I.
Richards Corp ..... Pittsburgh, Pa.
Richmond Foundry & Mfg. Co., Inc ..... Richmond, Va.
Ridge Tool Co ..... Elyria, Ohio
Riverside Boiler Works, Inc ..... Cambridge, Mass.
Riverside Foundry & Galvanizing Co ..... Kalamazoo, Mich.
Robbins, Gamwell & Co ..... Pittsfield, Mass.
Rockford Brass Works ..... Rockford, Ill.
Rock Island Mfg. Co ..... Rock Island, Ill.
Royal Brass Mfg. Co., The ..... Cleveland, Ohio
Rumsey Pump Co., Ltd ..... Seneca Falls, N. Y.
Russell Mfg. Co., Inc., John M ..... Naugatuck, Conn.
Russell & Co., W. A ..... New York City

Sall Mountain Co ..... Chicago, Ill.
Sands Mfg. Co ..... Cleveland, Ohio
Sanitary-Dash Corp ..... New York City
Sarco Co., Inc ..... New York City
Savo Mfg. Co ..... Chicago, Ill.
Scadron Brothers ..... New York City
Scaife & Sons Co., Wm. B ..... Oakmont, Pa.
Scientific Heater Co ..... Cleveland, Ohio
S. E. T. Valve & Hydrant Co ..... New York, N. Y.
Self-Cleaning Strainer Co ..... Chicago, Ill.
Selfridge-Norton Mfg. Co ..... Cleveland, Ohio
Semler Co ..... Jeanette, Pa.
Sherwood Brass Works ..... Detroit, Mich.
Shoe-Letcher Co., Inc ..... Jersey City, N. J.
Simonds Saw & Steel Co ..... Fitchburg, Mass.
Simplex Boiler Stand Co ..... Brooklyn, N. Y.
Simplex Mfg. Co ..... Chicago, Ill.
Spencer Regulator Co ..... Salem, Mass.
Standard Asbestos Mfg. Co ..... Chicago, Ill.
Standard Elsmere Granite Co ..... Chicago, Ill.
Standard Tank & Seat Co ..... Camden, N. J.
Standard Water Systems Co. of N. J ..... Hampton, N. J.
Stark Pump Co ..... Detroit, Mich.
Sterling Faucet Co ..... Newcomerstown, Ohio
Stoll, Chas. J ..... New York City
Stringer Brothers Co ..... Chicago, Ill.
Structural Slate Co ..... Pen Argyl, Pa.
Stuart & Co., D. A ..... Chicago, Ill.
Swett Iron Works, A. L ..... Medina, N. Y.

Taco Heaters, Inc ..... New York City
Taylor Co., Halsey W., The ..... Warren, Ohio
Teck Manufacturing Co ..... Chicago, Ill.
Teekorator, Inc ..... Rochester, N. Y.
Tillery's Little Janitor Clock Co ..... Newark, N. J.
Titchener & Co., E. H ..... Binghamton, N. Y.
Trageser Steam Copper Works, John ..... Maspeth, N. Y.
Trenton Brass & Machine Co ..... Trenton, N. J.
Trimont Mfg. Co., Inc ..... Boston, Mass.
Troop Water Heater Co ..... Pittsburgh, Pa.
Tryco Products, Inc ..... Westfield, Mass.

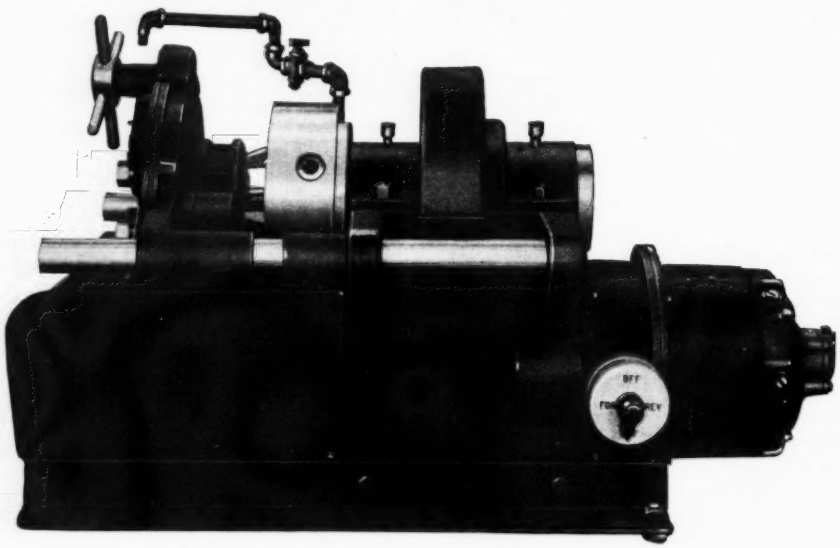
Utica Radiator Corp ..... Utica, N.Y.
Utility Laboratory, Inc ..... Brooklyn, N. Y.

Van Arnam Mfg. Co ..... Fort Wayne, Ind.
Vanderman Mfg. Co ..... Willimantic, Conn.
Vinco Co., Inc ..... New York City
Vitreous Enameling & Stamping Co., Inc ..... New York City
Vogel Co., Joseph A ..... Wilmington, Del.
Vulcatex, Inc ..... Chicago, Ill.

Wade Iron Sanitary Mfg. Co ..... Chicago, Ill.
Walker Dishwasher Corp ..... Syracuse, N. Y.
Walworth Company ..... Boston, Mass.
Ware Coupling & Nipple Co ..... Ware, Mass.
Warnock Manufacturing Co ..... Worcester, Mass.
Warren Electric Appliance Co ..... Warren, Pa.
Washington Metal Products Co ..... Washington C. H., Ohio
Water Works Equipment Co., Inc ..... New York City
Watts Regulator Co ..... Lawrence, Mass.
Weis Mfg. Co., Inc., Henry ..... Elkhart, Ind.
Wesley Co., Chas ..... Chicago, Ill.
Wessels & Sons, D. D ..... Detroit, Mich.
Western Wire Products Co ..... St. Louis, Mo.
Wheeling Machine Products Co ..... Wheeling, W. Va.
White Flush Valve Mfg. Co ..... Denver, Colo.
White Steel Sanitary Furniture Co ..... Grand Rapids, Mich.
Whitlock Coil Pipe Co ..... Hartford, Conn.
Wilks Mfg. Co., S ..... Chicago, Ill.
Williams & Co., J. H ..... Buffalo, N. Y.
Worcester Brush & Scraper Co ..... Worcester, Mass.

"X" Laboratories ..... New York City

Yeomans Brothers Co ..... Chicago, Ill.
Yost Mfg. Co ..... Meadville, Pa.



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DOMESTIC ENGINEERING
Plumbing & Heating Contracting and Merchandising

Vol. 129, No. 5
Whole No. 1905

Chicago, Illinois
November 30, 1929

OBSERVATIONS

Christmas Buying

There are some subjects which are perennial—subjects upon which editorials are written with the same regularity that the seasons — or holidays — appear. Christmas gift buying is one of those subjects. But we do not feel that the opportunity offered by this season of the year has been so developed by the industry that the editorial on the subject can be a mere reminder. In the first place, the opportunity grows greater with each passing year. This year it is reported that six hundred million dollars will be distributed by the banks which have conducted Christmas Savings Funds through the year. This represents an increase of ten per cent over last year. The industry which could sell merchandise to the amount of the increase alone would have reason to be happy.

A Growing Opportunity

In this issue we show two suggested window backgrounds as part of our policy of offering practical sales help to the contractor. Also direct-mail and newspaper advertising material which is built around the idea of plumbing and heating materials as gifts for Christmas.

Those contractors who have capitalized the gift-giving season in a merchandising way have enjoyed nice returns. We suggest this practice as a potent means for profitable business.

The Auxiliary

We have not commented for some time on the editorial pages about the activities of the national auxiliary, perhaps for much the same reason that we take all of the good things provided in the well managed home more or less for granted. However, the series of messages from national officers, to be followed by others from state officers, is furnishing a very clear picture of the keen consciousness the ladies of the auxiliary have of the service it is possible for them to render to the industry.

Auxiliary Work

Our own feeling is that one very vital phase of the industry's trade promotional activities which the ladies might aid materially is the educational phase. It is unquestionably true that expansion must wait upon education. The Atlanta ladies pointed the way for units in metropolitan districts in their organization of the Bath-a-Day campaign some time back. Those states in which there are large agricultural districts might find another worthwhile task to be accomplished in the rural sections through some such educational effort.

The industry has grounds to be grateful for the contribution the ladies have made to progress along such important lines as vocational education. As the efforts of the auxiliary broaden it will doubtless give further grounds for congratulation.

A Turning-Point

Wilson, our war-time president, wrote an essay once, called: "When a Man Comes To Himself." It dealt with that period of a man's life when, the incoherence of youth and its faults behind him, he took stock of himself, his talents and his opportunities, and gathered himself together to face the real work of his life.

It is not too far-fetched to compare the present state of the industry with that time in the individual's life described by President Wilson. There are signs that the industry has "come to itself." There are other signs that the entire construction industry is at a turning-point.

The time is right, therefore, for taking stock. The time is right for considering what is to be the future course of events. The time is right for the industry to gather itself together and face its real work—that of rendering service at a profit.

Time for a Check-Up

Within the building industry there seems to be a general tendency to look critically at the present state of affairs. Within our own group there is the trade practice idea and the insistence upon better credit conditions.

As was pointed out in our last issue, the final termination of the great bull market will undoubtedly release great sums of money, hitherto tied up in the form of credits to those in the market, for use in more normal ways—one of which will be, of course, the financing of building operations. In some quarters it is said that more of certain types of buildings are needed. And analysts generally agree that banks will now turn a larger volume of money into construction channels.

It is probable, therefore, that we face renewed activity in building. We face it with a certain willingness

to undertake the industry's portion of the work in a saner frame of mind than that which prevailed during the boom years.

There is, of course, a certain amount of caution needed as the conditions caused by the unhealthy practices of the past few years are cleared up. It is devoutly to be hoped that, once they are cleared up, there will never be another situation of the same sort created. When one metropolitan section reports that over fifteen hundred contractors are more than four months in arrears, and that they owe in the neighborhood of two million dollars, it is evident that something has been grossly wrong with business procedure in that section.

A Difficult Condition

A sane course of conduct must be framed, and followed. Obviously, putting sudden pressure on a group of contractors so far in arrears would only cause hardship on the wholesale houses involved—would probably force some of them into bankruptcy with the contractors unable to weather the storm.

But as the stream of new business commences to swell, some arrangement must be made in every section affected by similar situations, to handle the new business on such a basis that it will be paid for within the normal credit periods, and will contribute something toward clearing up the old debts.

We call attention to the matter at this time because there is danger that the opportunity to get the industry on a pay-as-you-go basis will be seriously compromised if the need for a plan definitely two-sided in its nature is not recognized. Something must be done to take care of the retirement of the old indebtedness; and something must be done to keep new business clear of the entanglements which resulted in such a topheavy load.

Advancement in Merchandising

The process by which a business paper such as DOMESTIC ENGINEERING gathers its stories of merchandising activities among the retailers in the industry has been undergoing a quiet revolution for a number of years. Once such stories were quite satisfactory if they pictured the personality of an aggressive retailer, and made mention in passing of one or more of his outstanding merchandising plans.

Such handling of these stories is no longer satisfactory. Where once we might have indicated that a plumbing and heating contractor had a good list of prospects, and kept sending them sales literature at regular intervals, now we find so many ideas for the gathering of such prospect lists, so many methods for keeping them up to date and for seeing that the right prospect gets the right literature; together with methods of personal follow-up, that nothing short of detailed description will do.

New Ideas

The same is true of other merchandising ideas. It was interesting to report the first use of the motorized plumbing shop—the completely equipped repair truck. Now there are as many various ways of handling and merchandising these trucks as there are of using direct-mail or newspaper advertising.

In other words, our task has become one of reporting the advances in merchandising rather than reporting the fact that so-and-so is a merchandiser.

Plumbing and heating contractors who have taken on specialties have developed a high degree of merchandising skill in marketing such products as oil burners, refrigerators, water systems and softeners, etc. This greater skill is, of course, reflected in their merchandising of the regular run of plumbing and heating materials, in so far as the chaotic conditions of competition have permitted such merchandising.

What is news in merchandising today among plumbing and heating contractors is history tomorrow in the light of newer practices being developed by the men who are in the front line trenches of the distribution system.

OBSERVATIONS by Our Readers

Editor, DOMESTIC ENGINEERING:—One of the conditions that are disturbing the heating and furnace men is that many of the oil burner agency people, in order to sell an oil burner, agree to do all the repairs of the boiler or furnace needed. They have their men do the said repairs, instead of referring the job to a heating contractor and thereby sealing the friendship of heating contractors as well as giving the people a satisfactory job. Many coal dealers are also agreeing to inspect and clean boilers and furnaces for nothing, or a very low unreasonable price, in order to sell coal. Which undoubtedly will cause them to lose the good will of some of their best customers, and win the heating men's ill will. They will, in time, find it more profitable to sell good coal, give good service, and back it up. And let the heating man attend to his own business.

Well, conditions are changing, and changing fast! We are doing our very best to adjust ourselves to the new condition that we are confronting daily. We have already connected up with most reliable, and quickest service, to get credit reports on prospective customers. We have, for the past three years, used the deferred payment plan, and use the finance company that seems most suitable to us for the job to be financed.

The above conditions are here to be met and the heating contractors can weather this stormy hap-hazard prostituting of the heating business by handling only the highest quality of merchandise and insuring the best grade of workmanship to give entire satisfaction. Also by handling products that are nationally advertised and recommended through our trade journals, such as the DOMESTIC ENGINEERING.

St. Louis, Mo. HARRY L. GAINES.

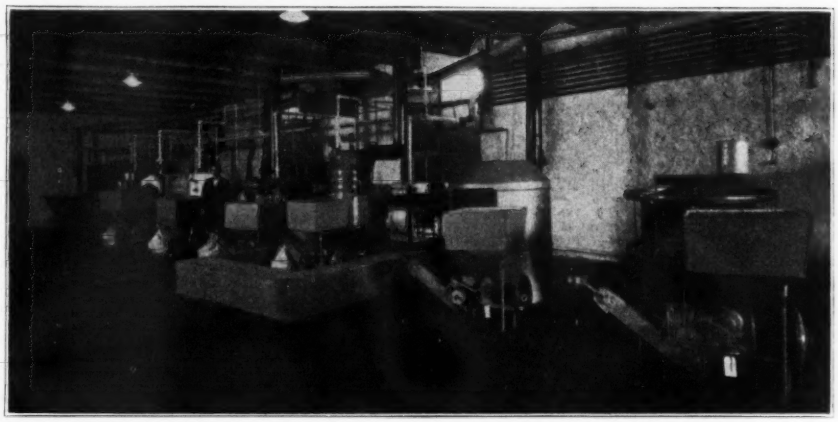


Fig. 1.—A laboratory where stokers are tested in various heaters and where proposed changes are thoroughly checked. Seven operating stands and one arrangement stand are provided. Different heaters and coal from various sources are always under test

Stokers *for* Domestic Use

By NOEL CUNNINGHAM

IN HOUSE heating during the last few years an insistent demand has developed for regularity and convenience beyond what is possible with hand firing. To meet this demand there have appeared the various household stokers. A few of these have been put on the market, all of which are a development of the underfeed power stoker.

Some of the features incorporated in domestic stokers are as follows:

1.—Regulation for coal feed and air delivery.

2.—Adjustment for proper regulation of air throughout the feed range.

3.—Removal of ashes by means of a conveyor to a container above the floor.

4.—Regulation of capacity.

5.—Means for clearing the firepot of fine material dropping through the tuyere openings.

6.—Means for the correction of the tendency to one side delivery of the feed screw conveyor to give practically vertical up-flow of coal in the fire-pot.

The average home owner will not attend to any but the most rudimentary details of upkeep, and any device for the home to be successful must be essentially simple and have all parts which are apt to wear interchangeable and readily accessible. Even a household faucet needs servicing, and, if a dealer is expected to continue handling any device, it must be something which can be maintained in service at small cost for labor.

Fuel Limitations of Stokers

The question is often raised as to the possibility of using in these stokers fuels other than Pennsylvania anthracite. Practically every variety of bituminous coal has been tried out as have also coke breeze and screenings from such foreign coals as reach this country. A few bituminous coals can be burned after a fashion. The essential requirements are freedom from coking, caking and clinkering, and sufficient mechanical strength to maintain granular structure under the mechanical pressure and abrasion to which the fuel is necessarily subjected.

No fuel except Pennsylvania anthracite meets all the requirements of a stoker which it is expected to market as a household utility. From the marketing standpoint a household stoker handled in the northeastern United States has a field which is incomparably the best in the world. Going outside the portion of the country where Pennsylvania anthracite is actively sold, the market for this household convenience becomes less attractive and costs of merchandising increase. Isolated areas exist where a local stoker business could be conducted with a fuel obtainable nearby other than Pennsylvania anthracite, but the amount of sales effort required would be far more remunerative if applied within the great markets available in strictly anthracite consuming territory.

Anthracite fine sizes are now produced to specification and, where exclusively mine prepared buckwheat or rice anthracite is used in the stoker, difficulty with fuel is almost unknown. This is chiefly due to the improvements in methods of preparation and standardization which have been inaugurated at the mines, but is also the result of refinements in stoker design and of increasing familiarity of an experienced dealer organization with the problem of stoker installation, adjustment and service.

Making Survey for Stoker Installation

Due to the increasing interest in household stokers and the fact that many dealers come into the heating field

who have had little previous experience with household heating, it may be well to outline a simple system which has been found workable in making surveys for household stoker installations. Fundamentally house heating is extremely simple—burn a pound of coal and a certain definite heating effect should result. The nearest practical measure of heating effect is the number of square feet of steam radiation which a given heating plant can take care of. In an average house, using a proper stoker in a boiler and a suitable radiator system which has been specified and installed by a competent heating man, each pound of coal burned per hour in zero effect weather will maintain 30 sq. ft. of steam radiation or 48 sq. ft. of hot water radiation. This is based upon the following calculation which features a typical example:

Fig. 2.—"Coal room" of a stoker company where the characteristics of coal are studied before tests are made

Assume 60 per cent efficiency which is readily maintained in an average good boiler equipped with a proper stoker; one pound of coal will then evaporate 7½ pounds of water which passes as steam through the risers to the radiators. Each square ft. of cast iron radiation, standing in 70 degrees Fahr., will condense ¼-pound of steam per hour, hence one pound of coal burned per hour will maintain heat in 7½ divided by ¼ equals 30 sq. ft. of steam radiation, or 1.6 × 30 equals 48 sq. ft. of hot water radiation. Vacuum, vapor and vapor-vacuum systems are figured as steam systems.

Make a survey tabulating the installed radiation in each room of the house, checking installed radiation against required radiation by a rapid application of the "2-20-200" rule. This rule assumes 1 sq. ft. of steam radiation required for: (1) Each 2 sq. ft. of single window, (2) each 20 sq. ft. of outside wall, unheated, unlined floor, and unheated, uninsulated ceiling, (3) each 200 cu. ft. of room volume. Normally northeast, north and northwest exposures require 10 per cent to 15 per cent more radiation than south exposures; east and west require 5 per cent to 10 per cent more than south. This rule is, of course, too inexact to apply for estimating radiation required on a new job, but will serve to give a fair idea as to whether an already installed radiator system is properly proportioned.

Additional Hot Water Service Requirements

The boiler and stoker capacity should be sufficient to carry the total installed (or required) room radiation plus an added 20 per cent for loss in risers and, if service hot water is also to be carried on the heater to be stokered, another 20 per cent is added to the stoker

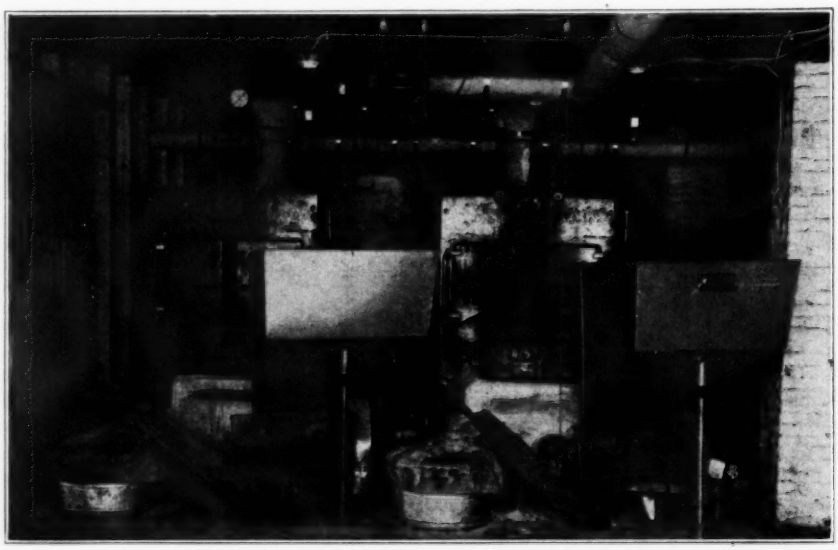


Fig. 3.—Stoker setup shows thermostatic control actuating both rate of coal feed and air. Note ash removal and that, in this typical case, only a front setting is possible. Fire and cleanout doors accessible

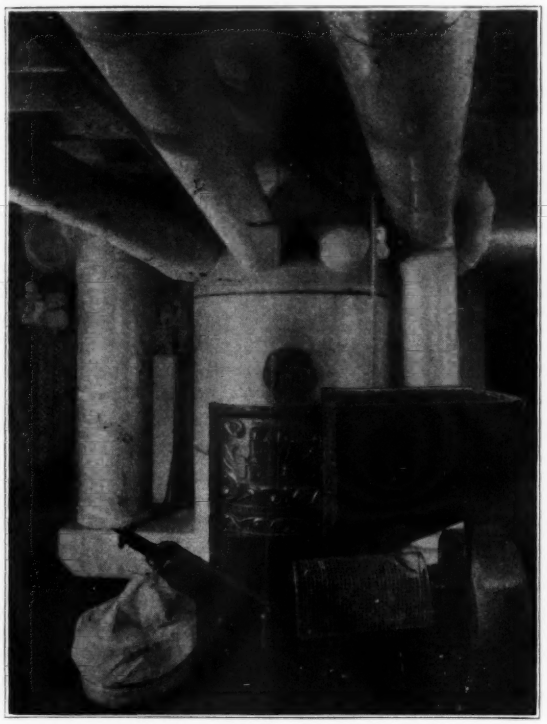


Fig. 4.—Another stoker setup. Note muffler to minimize fan noise. Fire door and cleanout accessible

and boiler load to meet the increased heat demand.

Where a more exact figure is required for calculation of service hot water load in terms of steam radiation, apply the following from the Heating and Piping Contractors National Association "Engineering Standards": "When water for domestic use is heated by means of a coil in the fire-box, figure each gallon of water tank capacity as equivalent to two sq. ft. of steam radiation, e. g. a 160-gallon tank equivalent to 320 sq. ft. When water . . . is heated by a submerged heater . . . figure each gallon of tank capacity equivalent to ½ sq. ft. of steam radiation." To estimate approximate gallons to tank capacity multiply the square of the diameter of the tank in inches by height of the tank in ft. and divide the result by 25.

In hand firing on grates or with burners operating intermittently, another 50 per cent must be added to allow for picking up the load in a cold system. With a stoker which can be set to maintain a steady fire, either small or large, this allowance is not necessary. During banking periods a stoker feed can be maintained which will keep the boiler hot and the radiators free from air, then, when more heat is required, it is necessary merely to increase the stoker feed.

Several boiler manufacturing companies publish correct ratings in their catalogues. Of those publishing fictitious ratings, some state how to correct published ratings to obtain actual boiler capacity. Where it is impracticable to phone the manufacturer's agent for information, it will be safe to assume that each sq. ft. of grate area will handle a maximum of 180 sq. ft. of installed steam radiation or 288 sq. ft. of hot water radiation, correction being made for riser loss and for service hot water load if any. There has been an agreement reached among boiler manufacturers to publish in their catalogues curves showing actual boiler performance and until this is done, the present uncertainty will continue.

The survey outlined above applies to steam, hot water and vapor-vacuum systems and provides approximations applicable for checking existing layouts to give reasonable assurance of a satisfactory stoker installation.

Even the rudimentary surveys indicated should not be undertaken without a thorough study of the innumerable factors entering into house heating. The most authoritative references are the American Society of Heating and Ventilating Engineers' "Guide," and the Heating and Piping Contractors National Association's "Engineering Standards."

Local Heat Requirements

In the vicinity of New York City the amount of coal required for house heating, averaged throughout the season, is approximately 42 per cent of the zero effect requirement. The heating season is approximately 5,000 hours. Required radiation divided by 30 gives the pounds of coal required to be burned per hour in zero effect weather. This multiplied by 5,000 is pounds of coal which would be burned, were the entire heating season zero effect. Multiplying by 0.42 gives the approximate seasonal requirements in pounds of coal indicated as necessary to maintain 70 degrees in the house. To apply this formula to other parts of the country substitute for 0.42 the factors in the following table:

Boston	0.47	Philadelphia	0.41
Portland, Me.	0.48	Saint Louis	0.36
Detroit	0.50	Milwaukee	0.50

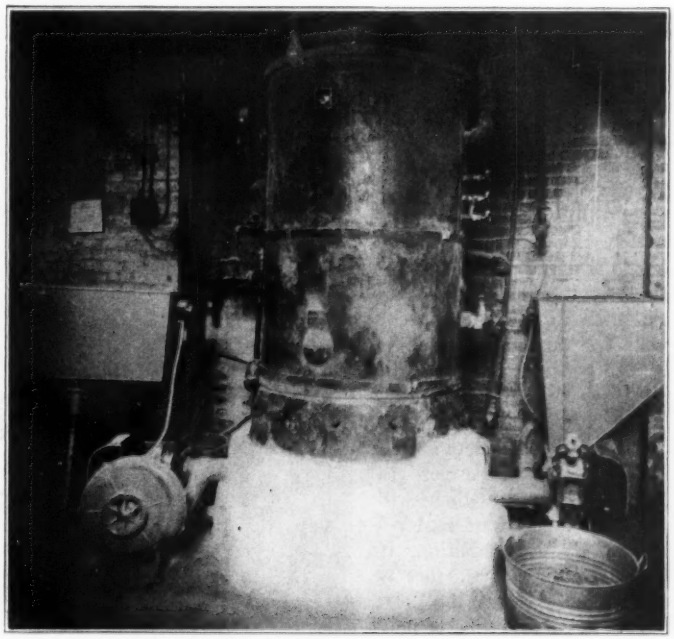


Fig. 5.—Two stokers under high pressure boiler. Special base provides space for burners

By interpolating or by using a certain amount of judgment requirements for other localities may be estimated.

It is not safe when figuring household stoker requirements to place implicit reliance upon statements of the householder as to the amount of coal burned in previous heating seasons, although this is an important figure to get for checking purposes whenever possible. Nor does coal previously burned necessarily indicate the correct size of stoker required. An anthracite boiler with natural draft normally will not burn over six pounds of large coal per hour per sq. ft. of grate area, and is usually designed to give maximum efficiency when burning from two to three pounds. Hence, it is important to measure the grate area and check the maximum indicated burning rate against the maximum indicated as required both on the basis of the installed radiation and the calculated radiation. This will give a fair idea of how correctly heater capacity checks with the job of heating expected. As an instance: Suppose a steam boiler having 24-inch diameter grate has 1,000 sq. ft. of connected radiation and careful checking indicates that this amount of radiation is required. A 24-inch diameter grate will burn approximately 19 pounds of coal per hour maximum, while a thousand sq. ft. of installed steam radiation (1,200 with risers) calls for burning 40 pounds of coal per hour in zero effect weather. Unfortunately heaters woefully inadequate to their load are encountered frequently. It is useless to put in a stoker which will burn the amount of coal required by the radiation, if the boiler heating surface is not there to absorb the heat. A dealer doing this is in a class with the installer of the under-sized heater.

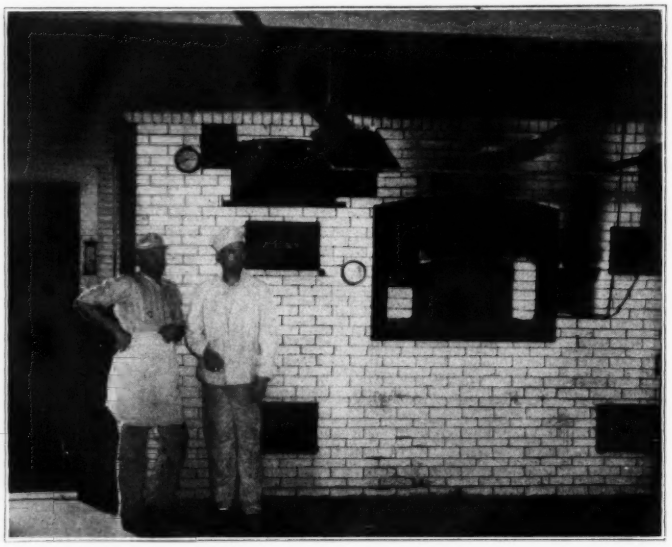


Fig. 6.—A commercial bake oven, equipped with stoker. The stoker enters the side and the oven is indirect heated, the gases passing through the brickwork above and below

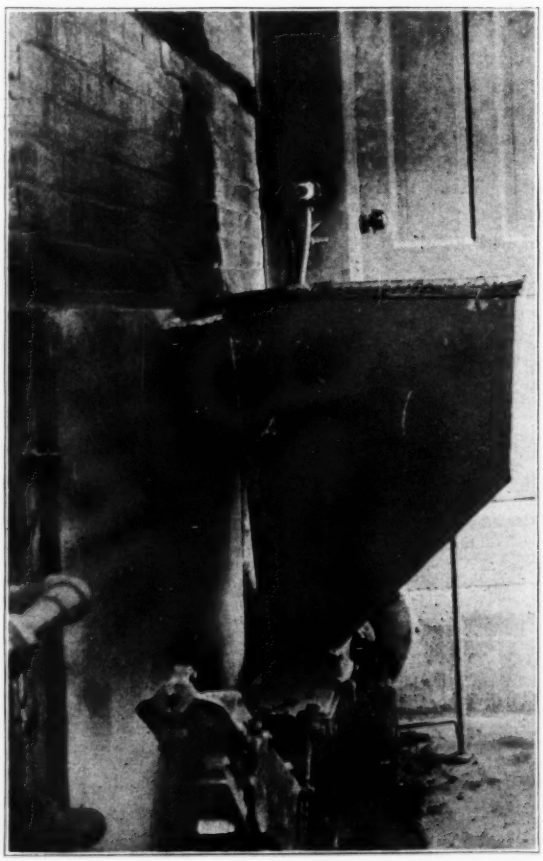


Fig. 7.—The stoker installed at the side of the bake oven shown above

Size of Stoker Depends Upon Owner Requirements as Well as Heating Plant Size

The habits of a household for which a stoker is considered have an important bearing. Often a stoker, apparently too small for the househeating load, proves entirely satisfactory to the customer; the reason being that, in the particular instance, it is not necessary to heat the bedrooms which may be about half the heating load of the house. On the other hand, when a stoker is installed on a guaranty to heat the house to the same extent that it has been heated previous to installing the stoker, complaint may be made that the stoker is not meeting the guaranty. Investigation will often bring out the fact that an effort is being made to warm rooms which never have been heated prior to installing the stoker and in which heating facilities are entirely inadequate. In the latter case the customer may be entirely honest but is just suffering from one of those lapses of memory which are so often responsible for a man's indicating his coal consumption during previous heating seasons as either far less than the size of his heating plant would show probable, or a heating effect far greater than the grate area would indicate as being possible. Much misunderstanding can be avoided by careful original surveys.

The Stoker Market

In the discussion above, emphasis is laid on the provision of stokers in existing household equipment. Of course much new work is stokered, and in such cases the heating contractor or the architect normally specifies the stoker and assumes the responsibility for selecting the proper heater and for the adequacy of the heat distri-

(Continued on Page 89)

Water Softening

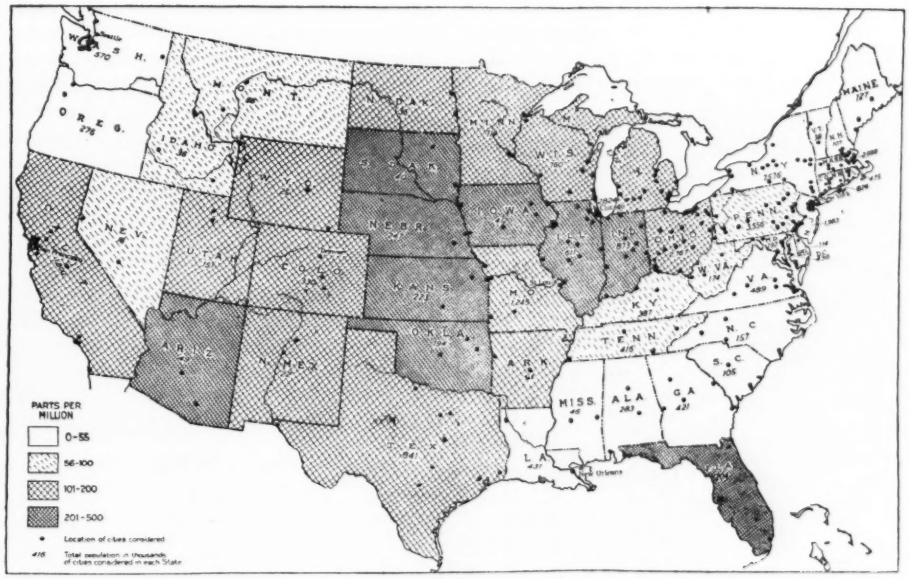


Fig. 1.—Map indicating condition of water throughout the United States from the standpoint of hardness. Portions unmarked by screen lines signify locations where water is soft. This graduates down to hardest water supplies as shown by the darker screen and indicated in the legend as 201 to 500 parts per million

The first of two articles on the subject of water softening by

RAY RILEY and V. F. LAMELA

THE classification of waters as to source is rather evident and the following scheme needs little explanation:

Source { Rain
Surface { Lake
River

Classification { Ground { Springs
Wells { Shallow
Deep { Artesian
Non-Artesian

It is obvious to the average individual that the source of the water determines the quality and quantity of dissolved constituents contained therein. Rain water will naturally carry the least and surface water will carry considerably more dissolved material. Ground water carries the highest quantity of dissolved solids in solution, and consequently is the water containing the most hardness. There are many exceptions to this broad generalization.

Lake waters in the immediate vicinity are expected to be less turbid than river waters because of the opportunity for sedimentation. In some cases lakes and rivers are spring fed to such an extent that their waters may be considered ground waters. Such a condition is the exception rather than the rule.

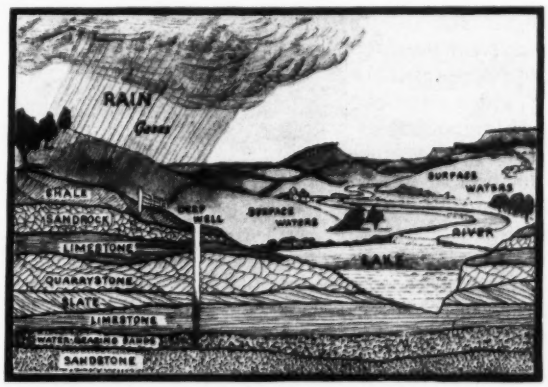


Fig. 2.—Diagram of natural conditions affecting the amount of hardness of water. Soft rainwater washes the atmosphere of dust and gases including carbon dioxide and in some cases sulphur dioxide. The resultant combination is an acid which reacts and dissolves part of the limestone to form carbonates and compounds which go to make up hardness in water. Lake water is usually less hard than well water

Deep and Shallow Wells Classified

The terms "spring" and "well" are employed in their usual sense. The meaning of the adjectives "deep" and "shallow" frequently depends upon local usage and for that reason the classification is of doubtful value. A shallow well is usually one which does not penetrate an impervious stratum, is frequently dug rather than drilled and is fed by seep-

age from the surrounding soil. Such wells are frequently subject to surface pollution, often become turbid after a rain and are likely to dry up during a drought. Deep wells penetrate to some water bearing stratum, frequently lying beneath an impervious stratum. Such wells are not dependent on the immediate local conditions and are usually independent of wet and dry weather. These wells, if properly cased, are not easily affected by surface pollution. If the water bearing stratum is sufficiently extensive it will serve as a reservoir to supply the well during a prolonged drought. Artesian wells are those in which the water is under pressure so that it rises above the stratum from which it comes but not necessarily above or even up to the ground level.

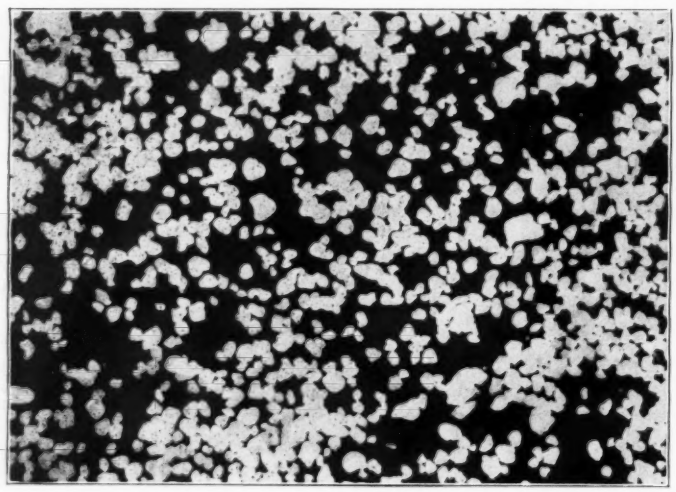


Fig. 3.—Photograph of greensand, a mineral used in water softening plants to some extent

The quality and quantity of dissolved constituents in natural waters depends upon the substances with which it has come in contact. The water (in the form of rain) in passing through the atmosphere may dissolve carbon dioxide, hydrogen sulphide, oxygen, nitrogen and ammonia. Near petroleum refineries and smelters, the atmosphere may contain quantities of acid which will be dissolved. Since practically all known substances are at least slightly soluble in water, a wide variation in the composition of natural waters, is to be expected. Surface and ground waters contain substances dissolved from the soil with which they have been in contact. The most common substances so obtained are salts of sodium (common salt), iron (rust), aluminum, calcium (lime) and magnesium (magnesia).

Regional Effect on Water

Generally speaking, the earth's surface may be considered to consist of limestone regions and granite regions. The middle western states are typical examples of the former. The New England states are representative of the latter. The surface and ground waters of these respective regions are as definitely defined as day and night. The surface and ground waters in limestone regions are hard, due to dissolved limestone and magnesia. Magnesia is closely associated in nature with limestone, in fact a large number of limestones are quite rich in magnesia. The average individual is perhaps more familiar with magnesia in the form of epsom salts.

Since rain water is free of lime and magnesia, it might be interesting to note the mechanism of the change which occurs when it comes in contact with the limestone in such regions. Limestone itself is only very slightly soluble. We are already familiar with the fact that carbon dioxide occurs in the atmosphere, in small quantities to be sure, but nevertheless, in sufficient quantities to be of inestimable value in the life cycle of man, animals and plants, without its presence in the atmosphere the earth would be transformed into a place uninhabited by man or animal and devoid of plant life.

Action of Rain Water on Limestone

The rain dissolves carbon dioxide from the atmosphere. This solution of water and carbon dioxide will dissolve large quantities of limestone. The quantity of limestone dissolved is markedly influenced by the amount of carbon dioxide present and the time of contact between water, carbon dioxide and limestone. In nature the time of contact is usually ample so that the carbon dioxide present is the determining factor. The magnesia associated with the limestone in nature is dissolved in much the same manner as the limestone. The water containing carbon dioxide from the air in passing over the surface or percolating through limestone strata converts it into a soluble form.

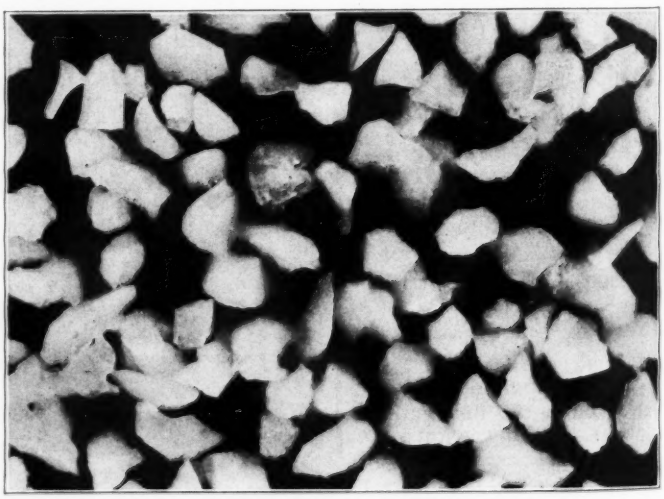


Fig. 4.—Photograph of particles of decalso, a mineral used in removing hardness from water

Granite is only very slightly soluble in water. The waters in granite regions are soft, that is, they do not contain dissolved lime and magnesia which produce hardness, soap destroying power, in water.

The waters in the New England states and along the Atlantic seaboard are of this general character. Most of these waters are under three grains hard, which is better than average cistern water.

In some localities the ground water may be extremely soft because it has percolated through a bed of natural zeolites. These natural zeolites are materials capable of removing hardness from the water. They absorb hardness from the water until they become saturated with hardening constituents.

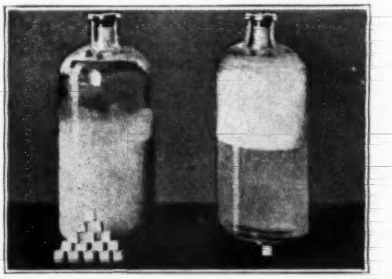


Fig. 5.—An illustration of the effect of hard water on soap. The small cubes are pieces of soap. 15 cubes being placed in the bottle of hard water to the left and one cube placed in the bottle of soft water on the right. Soap in soft water produces a lather while in hard water it removes the hardness and forms curds before a lather is produced with the excess amount

After this point is reached, hardness is no longer removed from water as it percolates through such deposits.

Greensand or Glauconite is a natural zeolite which is mined in New Jersey. The raw material is washed free of clay and other impurities. The washed material receives a chemical processing to stabilize it toward the disintegrating action of water. In the raw state, Greensand will soften water, but its slow disintegration imparts a characteristic green color to the water. The chemical treatment which the Greensand receives in processing stabilizes it to a marked degree. Greensand is not widely used in domestic water softeners. In this field, it has practically given away entirely to the high capacity synthetic zeolites.

Characteristics of Hard Water

Hard water is characterized by its soap consuming power, that is, the quantity of soap required to give a lather. The scale in kettles and the gray to brown deposits often found in closet bowls and lavatories are evidences of the presence of hard water. These deposits are calcareous deposits containing varying amounts of iron. This deposit can be removed by the use of chemicals. The solution, in the case of hard water, is to soften the water before it comes in contact with the kettle or the soap in the wash basin or bath tub.

The hardness in water cannot be seen. It can be detected with a soap solution or by other chemical means. The former is the simpler and more rapid method. Its presence is pointed out by scale, deposits and slimy curds when soap is added to water. The scale and deposit characteristics of hard water appear only after a short time. Once they make their appearance, they stay. Hardness in water must not be confused with dirt and other visible suspended matter which can be removed from water by plain sedimentation. These materials may be deleterious under many conditions but they do not produce hardness in water.

The quality of natural waters is dependent upon the source of the water. Surface waters in limestone regions are materially affected by seasonal changes. During rainy seasons, the surface waters become less hard, due to dilution with large volumes of rain water. During dry seasons the surface waters are harder. The variation in the hardness of shallow well waters is usually not as great as in the case of surface waters. The composition of deep well waters is quite constant.

A hard water, technically speaking is one containing lime and magnesia or calcium and magnesium salts. Popularly speaking, hard water is one with which it is difficult to obtain a soap lather. A little insight into the nature of soaps will make this clear.

The ordinary soap is manufactured from animal or vegetable fats and oils such as tallow, palm oil, olive oil, cottonseed oil and caustic soda. The oil or fat and caustic soda are mixed under certain conditions. The resulting product is soap, which is chemically a sodium salt of a fatty acid. This soap is soluble. Such soaps readily produce a lather on waters free of hardening constituents such as rain water and distilled water and some natural waters. Sodium is an alkali, other alkalies may be used to produce a soap. The nature of the soap is dependent on the alkali used. The soluble soaps are valuable cleansing agents. The most commonly used soaps of this type are those made from soda, hard soap, and potash, soft soap.

The soap produced by the use of other alkalies may be an insoluble soap. Such a soap does not produce a lather. In the group of insoluble soaps, one finds calcium and magnesium soaps.

Soap Softens Hard Water Before Cleansing

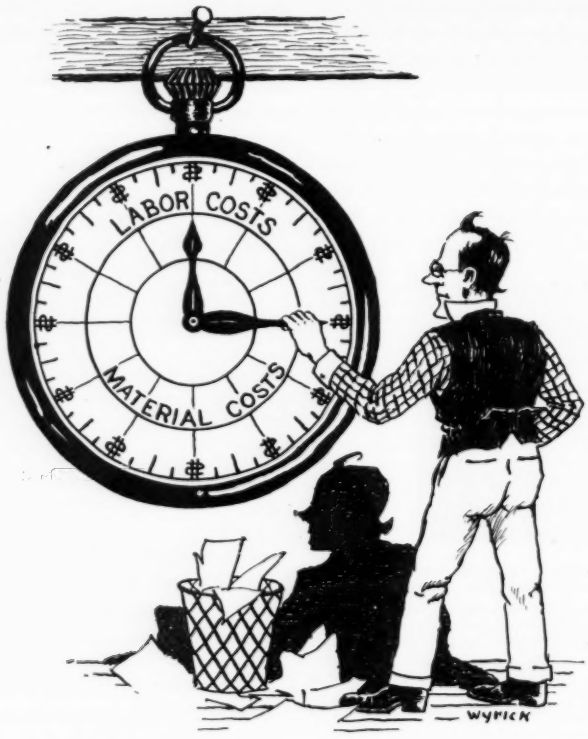
When soap is placed in hard water, the soluble sodium soap is changed into the insoluble calcium and magnesium soap and a lather is not obtained until all the hardness has been removed. In other words, a lather appears only after the water has been softened with soap. The hardness has been removed by forming the insoluble calcium and magnesium soaps which collect as a slimy curd on the sides of the wash basin.

Early Knowledge of Hardness in Water

From remote antiquity, people have known that certain waters were hard and others were soft. Frequently, the hardness of the water was associated with its potability. They knew that some of the unsatisfactory qualities of a water were due to dissolved minerals.

The many incidental references to quality of water and the ideas in old books are quite noteworthy. In many instances, they are in surprising accord with our modern ideas. Pliny (79 A. D.) said that, other

(Continued on Page 85)



Be sure you know what your labor and material costs are, without guessing, says

WILLIAM MORRIS

in the fourth and final article of a series on

Practical Bookkeeping

THERE are four items in the contract set forth in the previous article on any one of which the reader may have a difference of opinion. They are the time allowed for labor, the amount allowed for material, the percentage allowed for overhead, and the percentage allowed for profit.

The amount of money allowed for labor has little bearing one way or the other. You may be located in a section where you can hire men for six dollars a day and helpers for six dollars a week. If so, your labor costs will be reduced accordingly, and the same will likewise hold true for those competing with you. However, if you are paying your men twelve dollars a day and a competitor is having the same work done by an experienced helper for six dollars a day, then his labor is costing him only half as much as you are paying, and you are up against an unfair form of competition that I understand constitutes a considerable problem in many sections. In that case the amount allowed for labor could very easily lose you the job. But, generally speaking, labor costs have little bearing on competitive estimates, and the same may be said of material prices. The time allowed for labor, however, is something else again. Many figure a lump sum on the theory that it should be done at that cost, and failing to check up whether it is or not, the method is nothing more nor less than guesswork. What we have attempted to show is the amount of work that ought reasonably to be expected, based on considerable checking, and much thought and study of the subject, prompted by a desire to be fair to the employe as well as the employer. If you can consistently complete contracts with less time for labor than is shown, your contract record will soon apprise you of the fact, and your reward for your ability to do so will be an increased profit, which puts you in a position to submit a lower estimate should the need arise.

As before stated, regarding material, one contractor ordinarily pays as much as the other. If it so happens you are paying less than your competitors that is an advantage. But be sure it is costing you less. Perhaps you are buying in large quantities at a reduced price. If so, it may be that the interest on the cash you have tied up, or interest on notes given to cover, cost of rent or storage, more than offset the reduction.

Study Your Records

Without a study of your records it is impossible to tell the exact percentage of your overhead, because this is something that is affected by a number of things, and therefore varies. You may be a good manager, and if so your overhead will be lower; on the other hand you may be a very poor manager, in which case it might be considerably higher. Doubtless it ranges somewhere between fifteen and thirty per cent. If it is less than twenty per cent it is likely that you know it, for the fact would indicate that you have given the matter some thought and attention. I can tell you what your overhead consists of and how to find it for yourself, but that is the most one can hope to do without an inspection of records. It may be helpful to say this, however. Your overhead is not apt to be fifteen per cent, and it is quite likely to be twenty-five or more. It is assumed that you are charging your own salary to overhead.

While this concludes Mr. Morris's articles in the series on "Practical Bookkeeping" it by no means concludes his work for the guidance of our readers. There will follow articles of the utmost practical value, with comparisons of estimates and costs and an analysis of the reasons for differences which occur.

Some headings for expense accounts that are part of overhead, in addition to those already given, are interest on investment, telephone, office help, taxes, making good on defective material, leaks, lost time, and rent. It may be you own your own building and do not charge shop or office rent. This is an error. The amount of rent you could get for it if it were not being occupied by your business is the amount that should be charged, for that is what it is costing you. "Are all expenses and losses overhead?" you may ask. To answer that let us suppose you have just received a thousand dollars covering the payment on some contract, and have the idea of increasing the profits of your business by speculation in stocks, with the result that you lose it. That would be loss without a doubt, but would it be overhead? Most certainly not, and if you include it as such your overhead is going to be out of all proportion to what it should be. This should be considered a withdrawal by the proprietor and charged direct to his account. To state the matter briefly, overhead consists of those expenses properly chargeable to the conduct of your business; usually expenses that your competitor will also have.

Earning a Profit

This brings us to the last of the four items, profit, which is shown as ten per cent, and it may seem to you that this is somewhat high, for if a man does, let us say, a total of $25,000 worth of business a year, and he draws the same weekly wage as a mechanic, and then in addition a net profit of $2,500, or a total of approximately $6,000, it sounds somewhat beyond the range of probability. Many are doing twice that amount of business and not drawing $5,000 a year.

The point I wish to bring out is this: If the average overhead is twenty-five per cent and five per cent is added for profit, making a total of thirty per cent for profit and overhead, then the contractor who, by study and hard work, has so arranged his affairs that this figure will include a ten per cent profit instead of four or five per cent, should get this additional profit for his reward, and not pass it on to the builder.

There are two good reasons for this. One is that he has earned it and should have it, else where are the rewards for ideas and initiative? The other is that by price-cutting he makes it harder for himself and others to get a fair return on their investment, and tends to lower the standards of the business. If you are making five per cent profit on your total business in addition to your weekly salary and all other expenses your business should be a profitable one.

A Comparative Estimate

Knowing the difference of opinion existing regarding these matters, and desiring to present them to you from a different viewpoint, I took this specification to a contractor operating in a town where competition is keen and prices are cut to the bone. The price given me was $891.75, and it was handed to me with the remark, "I'd take it for that and be glad to get it."

"What do you suppose your overhead is?" I asked.

"Oh, about twenty per cent, I guess," was the careless reply.

This estimate was what I expected because I knew similar contracts were being given out at those figures. In order that you may understand how a man arrives at them, and because I believe it will prove interesting, I am giving the estimate to you just as it was given to me. You will note that less than seventeen per cent is allowed for both overhead and profit.

Labor (plumbing)	$120.00
Roughing material (plumbing)	100.00
1—5½-ft. bathtub	30.00
1—18x21 lav.	12.00
1—Closet combination	35.00
1—Sink combination	54.00
1—Gas water heater	6.50
1—Indirect water heater	2.25
1—Range boiler (30 gallon)	9.50
Gas piping	10.00
Leaders and flashing	22.50
284 ft. of radiation	90.00
Boiler	100.00
Pipe and fittings	70.00
Labor (steam work)	80.00
	$741.75
Profit and overhead	150.00
	$891.75

It will be remembered that the job was actually let for $1,237.

I was further advised that if competition was keen and the work was done where no test or extra heavy pipe and fittings would be necessary the plumbing labor would be cut to $70.00 and the roughing material to $80.00, reducing the bid to $821.75.

No comment is necessary, but it might be observed

that the handicaps some plumbing and heating contractors impose on themselves doubtless account for their lack of prosperity in spite of the fact that they do an enormous business. The question might be asked, "Who is better off, the man who does a small business and makes a fair profit, or the man who does considerable business, making no more money, if as much, although having greatly increased worries and responsibilities?"

Some Accounting Problems Solved

WHEN you receive your bank balance, usually at the end of each month, it should be checked with your cash account. And here it might be well to say all receipts should be deposited in the bank. The habit of taking cash from payments for personal use is to be condemned. They should first be put through the records and deposited. In this way the record is complete and by making this an invariable practice there is never any question as to whether or not a payment was received and entered. After deducting from bank balance the total of checks sent out and entered in the cash account, but not yet returned to the bank and hence not deducted from the total shown by their statement, the bank balance and cash account should agree.

How to Close an Account

The closing of accounts is illustrated by the forms shown for accounts payable and expense. The procedure is to total the columns in lead pencil and the difference in the sides is then set up on the smaller side in red ink as a balance. A single red line is then drawn under each column of figures. The totals, which of course will be equal, are then filled in; a double red line is drawn under each total, and the balance in black ink is then put back under the column to which it belongs. This applies to accounts showing assets or liabilities. Accounts showing loss or gain are closed the same as the expense card which was shown for automobiles, and the profit or loss is carried to the loss and gain account, the total profit or loss of the loss and gain account being carried to the proprietor's account to show his present worth.

Profit

How to ascertain the profit on contracts has been explained. To find profit on day's work alone for any period add profit columns of time cards and material tickets for that period. Should any of these show a loss it is entered in the profit column in red ink at the time of filling in the form, and deducted when totaling. The merchant, carrying many lines and therefore in need of more detailed information, would classify expenses according to income to find the net profit on a particular commodity to know whether or not he should continue to carry it, but as we have only two main sources of income, day's work and contracts, it is not necessary to do this.

Income Tax Return

If you are worrying about your lack of understanding of an income tax return, my advice is, "Don't." Former Secretary of War Baker once had some money returned to him because he over-paid, and if that could happen to Mr. Baker who has been described as the greatest intellect in America, what chance have you and I?

Unless you are thoroughly familiar with the subject, the easiest, simplest, and usually the most inexpensive way to solve this problem is to have it made out by an attorney or certified public accountant who makes a specialty of tax returns. The reason for this is that the income tax department is then in a position to know that the return has been made out by some one who understands the requirements and if it appears to be in proper form can assume it is correct. If you make it our yourself and there is any question about it you will probably be called before some representative of the income tax department perhaps a year later. In addition to the inconvenience and loss of time you are put to the necessity of familiarizing yourself with the facts and figures contained in your return, long since forgotten. This is no reflection on the tax department who are merely endeavoring to do their work in a conscientious manner. If you have your return made out as suggested it may cost you twenty-five or fifty dollars, but it will be worth it.

To present a simplified set of records it has been necessary to do away with much of the routine detail which forms so great a part of accounting systems the world over. In doing so, however, the writer acknowledges that while unnecessary detail is useless, confusing, and a needless expense, necessary detail is an essential part of many systems, and serves the useful and valuable purpose of insuring accuracy, and is exceedingly helpful in checking errors and presenting proof.

The idea has been to set forth a system easily understandable to the uninitiated. Something that he can use, and therefore, so far as he is concerned, something practical; something that, although shorn of all its frills and fine lace, is nevertheless, like a pair of overalls, serviceable and useful. When you expand your business to the point that justifies the employment of an accountant, stenographers, supervisors, and a large organization of workmen, you will have a real need of everything that a complete accounting system can give you, and your profits will more than justify the number of clerks necessary to handle it. Statements in concise form, containing all sorts of valuable information concerning your business will be needed, helpful, and tend toward economy. The difference then will be that their worth will far exceed their cost, whereas now their cost would be much in excess of their value.

The plumbing and heating trades in all their phases present many problems, of which accounting, although of much importance, is but one; and even this has many different angles, due to various conditions facing contractors in many sections doing different classes of work. Therefore it is hardly possible to lay down a set of rules that will exactly fit the requirements of all. This is well understood by the writer who has merely tried to set forth the underlying principles governing the keeping of accounts in order that you might fit them to your particular needs, adding such details and suggestions, gathered from his own experience, regarding accounting for the plumbing and heating contractor as he has thought would prove of benefit and interest. If the articles have yielded you even one idea that will prove helpful in solving your problems, the author will feel that his efforts have served a worth-while purpose.

PLUMBING & HEATING MERCHANDISING

Store Fronts

HOWARD H. EDMONDS, *a specialist in the remodeling of store fronts analyzes the various types and their effectiveness, as a matter of experience*

Note the accessories displayed. This successful plumbing and heating contractor has an eye for additional profits. The store front could be much improved by the addition of a marble or stone base, with ornamental grills for ventilation to basement. The cost would not be more than $500.00

THE store front indicates the character of the business establishment as well as of the men back of it, and that holds good whether the business is clothing, shoes, plumbing, or what not.

If you do not believe that statement, name any store with which you have done business, and see if the store front is not the first thing that comes to your mind as being associated with the name mentioned, and then closely following, you conceive a picture of the whole establishment, that is catalogued in your mental index as good, bad or indifferent.

While we should not belittle the store that sells cheap merchandise, the public will not patronize a store simply because it has the appearance of being cheap. It is much better to let the world know that you are selling good goods cheap, than it is to convey the impression that you sell cheap goods.

Importance of Impressions

Personal service still counts for much in dispensing merchandise. In most cases, however, our contact with the seller is made through the things that represent him, such as his store, clerks and the commodity sold. It is by these contacts that we form either favorable or unfavorable impressions; the store front being the first point of contact, our impressions are lasting. It is here that every purchaser must pass to enter the store; that being the case, efficiency should begin at the front door.

There are a few fundamental principles that it is well to have in mind before proceeding to select a store front for your business. The first of these is to build character into the front. If possible, it should be distinctive and reflect individuality; it must identify your store and your

goods, and by doing that it sets you in a class by yourself. There must be a balance between the store front and the store itself. A beautiful show window and a dingy interior do not go well together.

A modest business requires a modest but well designed front that is in harmony with the whole business structure. There is a sense of disappointment that is damaging if this harmony does not exist. Attractiveness, and by that I mean pulling power, is of more importance than first cost. Spending a few more dollars in added features means nothing if the results accomplished produce increased sales. Most people are too much concerned with the cost instead of the result. The store front is a silent salesman, which works three hundred sixty-five days in the year, and if given half a chance will return its cost many times over in sales volume.

The main achievement in store front construction is to make it easy for the prospective customer to walk into the store. Observation has shown that the average shopper is a very timid person; very slight things will cause him to turn away and proceed up the street. Such things as improper lighting of vestibule or show windows, a jarring note in colors and contrasts, all have an unconscious but dampening effect on the prospect's mind, and a sale is lost.

Continuous Window Line Valuable

The more continuous a window line, the more valuable a front becomes. Heavy corner bars should be eliminated; nothing should be placed to obscure the vision of the passerby or detract his attention from the main object. All ornamentations and backgrounds should be designed solely for the purpose of focusing attention upon the article displayed, rather than upon the surroundings.

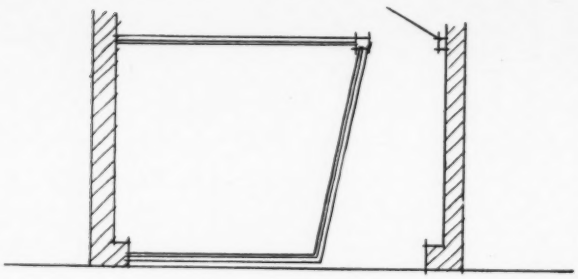


FIG. 1.

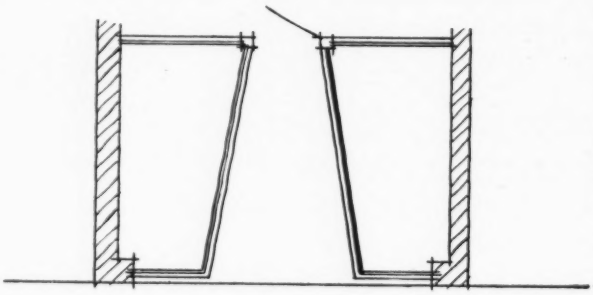


FIG. 2.

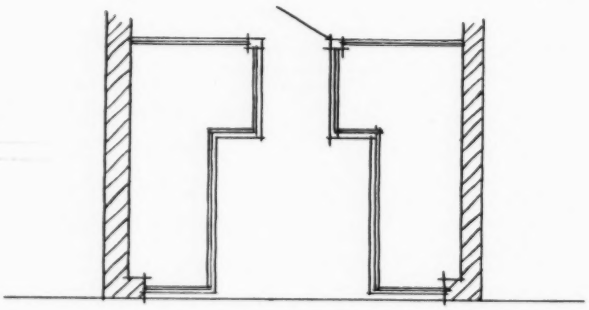


FIG. 3.

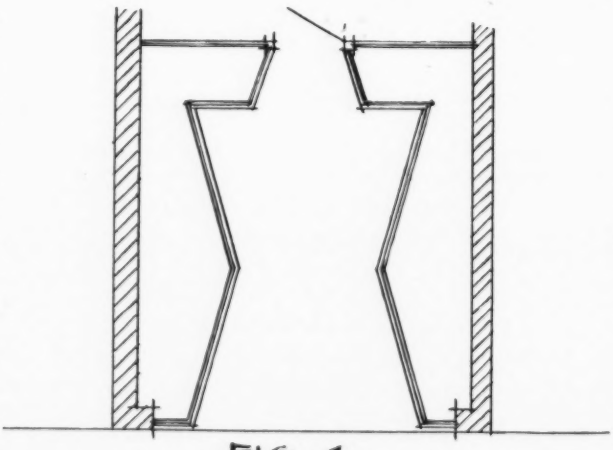


FIG. 4.

The above drawings show four types of store fronts: The side entrance, the center entrance and two of the recessed types

It would be difficult to describe in detail any given type of front for a particular business. Each case must be studied from an individual standpoint, bearing in mind the location and class of trade catered to.

For the purpose of comparison we can classify store fronts into three types: First, the one window and side entrance; second, two window center entrance; and third, recessed fronts.

The first type of front mentioned should not be considered unless a very large window is necessary and the merchandise to be displayed is large in bulk, such as furniture, pianos or the like, or in a very narrow front where the width permits nothing different. One common mistake of store front builders is to make the show windows with this type of front too deep, where it is used for the display of small articles. This method not only takes up valuable space inside the store, but adds nothing to the value of the front. A deep window completely filled with goods has a bargain store look, while a shallow window, properly dressed with a few choice articles, is suggestive of a greater selection to be found inside.

A side entrance front offers difficulties in trimming, when several kinds of goods are to be shown. It is better, for instance, to display plumbing in one window, and heating materials in another, than it is to show them both in one window. Fronts of this type can be installed for about one-third less than the two window type, but

where pulling power is of prime importance will prove to be only fifty per cent as efficient. Just to make sure that my analysis of this type of front was correct, I made a survey in one shopping center and found that very few successful stores were using side entrance fronts, and further that there were more vacant stores in this type than the other fronts. The only reason that can be assigned for this condition is that the chances for successful merchandising are less with one window than with two.

The center entrance front has by far the greater possibilities. Here can be obtained the perfect balance that adapts itself to many architectural designs and effects. Where it is found desirable to use two straight return lights it is well not to set the door too far back. The same principle applies here as with the one window front of not getting the windows too deep. The vestibule should be wide enough to be inviting, and unless there is extreme width in which to widen out the vestibule in proportion, this type of front should not be more than seven feet deep. Having located the door in the exact center, with windows of equal size on each side, you can proceed with most any kind of treatment with the assurance that the harmony of lines and proportion will not be lost.

Having two windows instead of one it is much easier to feature two different kinds of merchandise. For example, by placing of plumbing in one window, and heating in the other, individual attention is directed toward each display. Mixed displays of merchandise are not in favor except for bargain store and sale purposes where a preponderance of showing is necessary to herd buyers into the store. It has been found that by individual or unit displays sales can be directed or concentrated in any two or more departments, and goods moved that otherwise sell slowly. This tendency toward unit displays has brought about the recessed front, which is merely a development from the two window front just described.

An effective entrance, three or four steps upward from the sidewalk level

Recessed Fronts

To obtain the recessed effect we digress from the straight lines of the conventional center entrance, set the door eight or ten feet further back, widen the entrance, make a few breaks in the glass line, and we have a recessed front that is not only pleasing to the eye, but have secured a maximum of show window space that makes possible the showing of six or eight units of display. Many of these fronts are so designed as to lead the shopper into the spacious lobby with display windows that can be seen from any direction. This lobby, in fact, becomes a promenade in which the window shopper can leisurely view the displays without interference. Recessed fronts are to be favored where floor space is available and maximum window display must be obtained. There is a great advantage in this where high rental costs make it necessary to get every inch of space possible.

How valuable a few feet of frontage may be regarded is best illustrated by the following actual happening: A certain firm signed a lease on a store sixteen feet wide, calling for a yearly rental of $16,000. This was $1,000 a front foot per year. A new front was planned, of the recessed type, calling for two windows

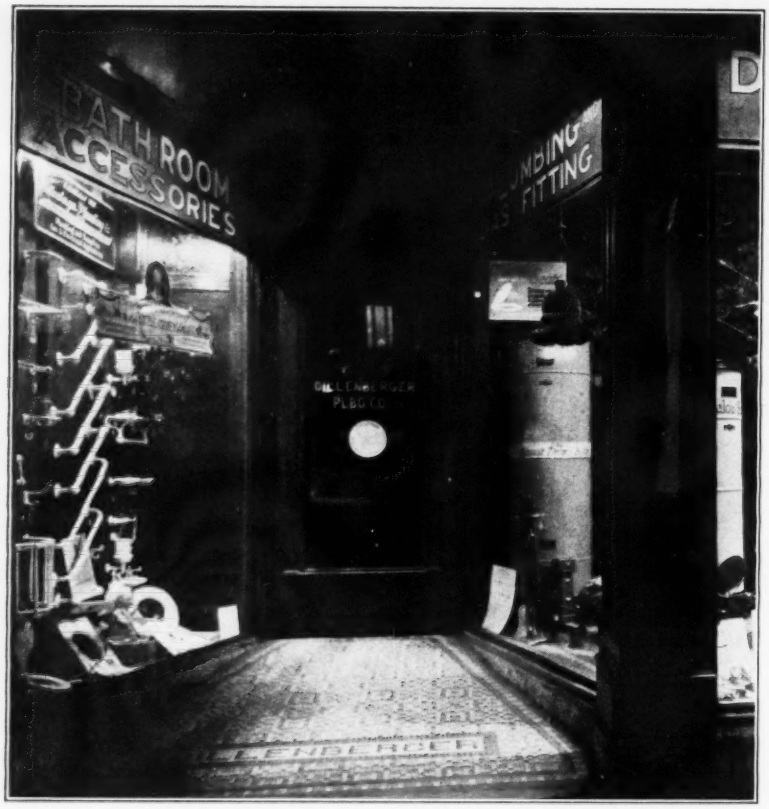
four feet wide and an eight foot vestibule. The designer of the front, however, discovered that by cutting down the width of the two brick and stone pilasters that supported the building on each side of the front, and substituting steel columns to help carry the load, that two additional feet of glass frontage could be obtained. This extra two foot display space was worth, at the smallest calculation, $800 per year in advertising value.

There is practically no limit to the extent to which store front construction may be carried. People who a few years ago shuddered at the thought of spending a few hundred dollars for store front alterations, are now spending thousands. Changes in merchandising methods, competition, the demand of the public for better stores, are forcing merchants to get in line with modern ideas.

The choice of materials for store front construction is so diversified as to gratify the taste and ambitions of most anyone. Marble and bronze, plaster and tiles, are deftly blended into creations that emphasize and magnify the beauty of the merchandise displayed.

While beauty and richness are well enough for those whose business requires such appearance, utility is the first consideration, and attractive fronts can be designed that have all the advanced ideas without being fancy. Lumber substitutes, such as beaver boards or masonite, may be used for interior finishing of show windows, instead of expensive wood-

A center entrance with clear view of both windows from sidewalk as well as from lobby



Note the window at the left for the display of accessories, leaving, at the right of the lobby almost the complete width for display of larger items

work. These materials lend themselves to various kinds of treatment and produce some very artistic results at little cost. Extruded bronze and copper may be substituted for cast bronze, for bulkhead, transoms and cornice. A most harmonious effect may be obtained by the use of cheaper American marbles in combination with bronze sill and transom bar construction.

There is always a limit where utility and simplicity ends and extravagance in detail and use of material begins. One location may demand elegance in the extreme where an exclusive trade is desired. It is to the average buyer, however, that most selling appeals are addressed.

No style of front or choice of materials should be selected without careful study of all the factors that have been mentioned. Hasty action may result in a beautiful front that is not fitted for the purpose intended.

A few of the great advantages of bringing a store front up to date are: that in a small way, it becomes a public improvement; it stimulates an activity in the entire community; and gradually builds up a healthy trading center in which to do business. This has been proven time and again. The first business man to make improvements in any locality always sets the standard for others to follow.

I am acquainted with a store owner who changes his store front every three or four years. He states that the altered appearance brings many new buyers into his place. The fact that his competitors are compelled to make improvements, far from being harmful, is a decided benefit, because more and more people are attracted to this locality. I would not go so far as to advocate the idea of a frequent change of front, but it has a curious psychological effect.

Costs

What does it cost to change a store front? There is no set rule that is accurate, owing to the difference in labor and material costs in various localities, as well as the varying heights and widths—your pocketbook and taste gauges the limit of what you should spend. An ordinary sixteen foot front, seven feet deep, with a marble base tile entrance floor, copper sash bar, hardwood display floors and birch window enclosures, costs about $1,500. The same front in solid bronze can run to $8,000 or over, depending on the design. If structural changes are necessary, such as shoring up the building to remove columns and install "I" beams, the cost will increase accordingly.

Many experts estimate that the equivalent of one year's rent is the proper amount to spend in improvements of this kind, providing a lease has ten years, or more, to run. This appears to be a reasonable basis, for if the rent of a certain store was $2,500 per year, and the lease was for ten years, the $2,500 spent for improvements could be charged off at the rate of $250 per year, or less than $25 per month. Very often you can take an old front and, by the expenditure of from five hundred to a thousand dollars, alter it into a very serviceable display unit.

Walking downtown to lunch, I pass two stores occupied by plumbing and heating contractors. The display windows of each are filled with a miscellaneous assortment of fittings that have no meaning to the ordinary layman. I do not know how much

rent these firms pay, but I do know the land on which these stores are located is worth $2,000 per foot. That means the location is valuable for store purposes. It is easy to figure that these firms are not making the most of their opportunity. A few hundred dollars spent in a new store front, plus a little cleverness in arrangement of window display, would bring splendid benefits in increased sales.

Thousands of homes are in the market for new bathroom fixtures, kitchen sinks and heating plants. It is not always necessary for these things to wear out in order to be replaced. Let the people know you have the goods by showing the goods. The power of suggestion and impulse will account for a great many sales. Many people have no idea of wanting a thing until they see it. Where can you find a more attractive display than the newly colored bathtubs and kitchen porcelains, when properly arranged to give the appearance they will have when installed in the home? Here is an appeal that any home lover will find it hard to resist. Bathroom trimmings, shower curtains, bathroom scales, and many other accessories, all have a ready sale, if displayed. Profits can be made in this way without any great increase in overhead.

Effectiveness of Displays

It may be admitted then, that it is all right to display plumbing fixtures, but can heating devices be displayed with equal success? Not very long ago I attended a building show, in which all sorts of building materials and accessories were shown. Complete houses were constructed, containing everything from kitchen cupboards to vacuum cleaners. I was surprised to see how many people were interested in heating plants exhibited. I was told that one exhibitor sold no less than one dozen units during the week of this show. This, perhaps, was not surprising when you consider the thousands of people who attended the show. The point I am making is that people are interested in heating plants, and will buy; and that a good store front, with a little cleverness in arrangement of display, is an excellent adjunct to any contracting business of this kind.

Speaking to a plumber friend of mine, who conducts a fair-sized business, I asked him what percentage of his yearly volume was in maintenance or replacement work. He hazarded a guess that thirty per cent of his total business was of this type. Further, that he had never advertised or solicited work of that kind. I finally brought out the fact that this was more profitable than his contract work, and in many years produced the difference between barely breaking even and making a net profit—a common enough experience.

There is no reason why the plumber and steamfitter should not utilize the store front to get business, as well as any other merchant. Bill Smith, plumber and steamfitter, means nothing, unless it is coupled with something that indicates the type and character of plumber and steamfitter he is. And, furthermore, in every growing community there are always new people moving in, who do not know where to get service of this kind. It stands to reason that advertising display in show windows is bound to bring results.

My advice to the person who is about to select a new front, is to secure the services of a store front specialist. In this way many of the mistakes commonly made in store front construction can be eliminated. The successful store front specialist will be able to make a survey of your entire problem, submitting designs and estimates based on a knowledge of your individual requirements.

It is worth while stressing again the importance of the store front and the impressions it makes on the passerby. The greater the individuality, the better and more lasting will be the impression made.

Think, for example, of the grocery stores with which you are familiar. You can divide them, and the types of people who buy in them, according to the appearance of the stores. There are some into which you wouldn't think of going. Why? Because everything about the appearance of these stores suggests a lack of care which, if extended to the handling of foodstuffs, would be distasteful. So we refuse to take the chance.

A modern store with center entrance and minimum of interference with views into the two windows

Christmas Window Merchandising

*Professional service for plumbing contractors who wish to build effective Christmas windows**

CHRISTMAS is an excellent season for window display results—perhaps the best of the year. At Christmas time everyone becomes a hurrying observant person and willing money spender.

During other months many retailers value their windows at hundreds of dollars—but at Christmas time this figure is multiplied many times. Almost every retailer has something special to feature during this busy season, and the wise ones place special effort in window displays. Hundreds of passers-by in the holiday crowd search the windows on the street for suitable gifts. The window display that sets the gifts off to advantage is the one that invites them into the store and makes sales.

Special window displays for Christmas are most easily arranged. Since the display possibilities are so great, and the Christmas display season so long, several displays can easily and profitably be featured during the period. Crepe paper as a decorating material enables the retailer to change a window completely at little expense. Green and red in combination with novel decorations cut from decorated crepe paper make displays that are unusual, and yet have all the things that people like and associate with Christmas.

In the two displays shown here new decorations, old colors, and novel uses of decorated crepe paper in Christmas designs are found. Window No. 1 uses a triangular curtain of Decosheen which gives a sparkling, shimmering spot to the display. The cut-out bell is made in a few seconds with a pair of scissors. In Display No. 2 the panel in the background of national blue shade is just the color to set off the drape of green and red. The two drapes pull from the corners and are so made as to make the display different, and also pull the eye to the center foreground of the window.

The instructions given here tell how these two displays are constructed:

Window Number One

MATERIAL REQUIRED:

4 Dec. crepe borders No. X12.
1 panel Decosheen (Blue) 30 in. wide and 30 in. long.
3 folds No. 44 Grass green.
3 folds No. 84 Flame.
1 fold Dec. crepe No. X983.
1 fold No. 55 Bluebird.
1 fold No. 62 Canary.

INSTRUCTIONS FOR INSTALLATION:

STEP 1. In the center of the window background tack the panel of Blue Decosheen.

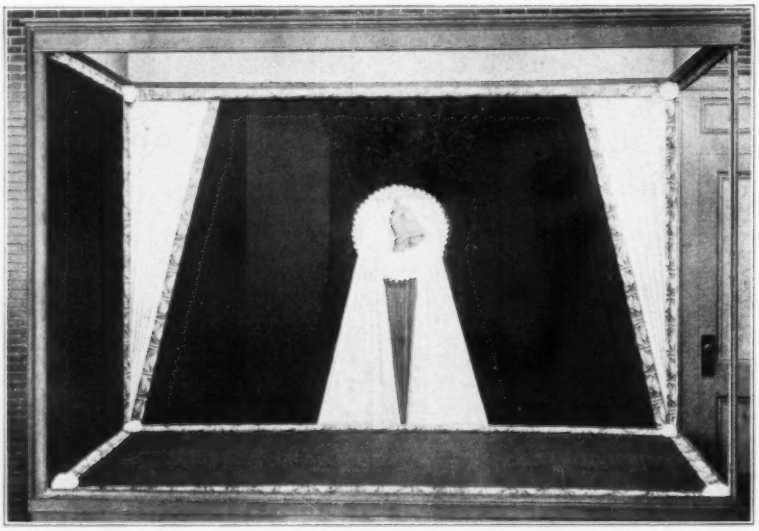
STEP 2. On each extreme side of the background place a drape of No. 44 Grass green, edged with a tube made from a Dec. crepe border No. X12, converging on the base of the window.

STEP 3. Next, about half way down the background of the window, below the Decosheen, tack a drape of No. 84 Flame, pulling it to the base of the window where it is tacked in place.

STEP 4. At the base of the window on either side of the center drape, tack a drape of No. 44 Grass green. These drapes converge about half way up the window background, and are tacked in place at either side of the No. 84 flame drape.

STEP 5. Outline the margins of the background with wide tubes, made from Dec. crepe borders No. X12, and place rosettes on the corners of No. 84 Flame.

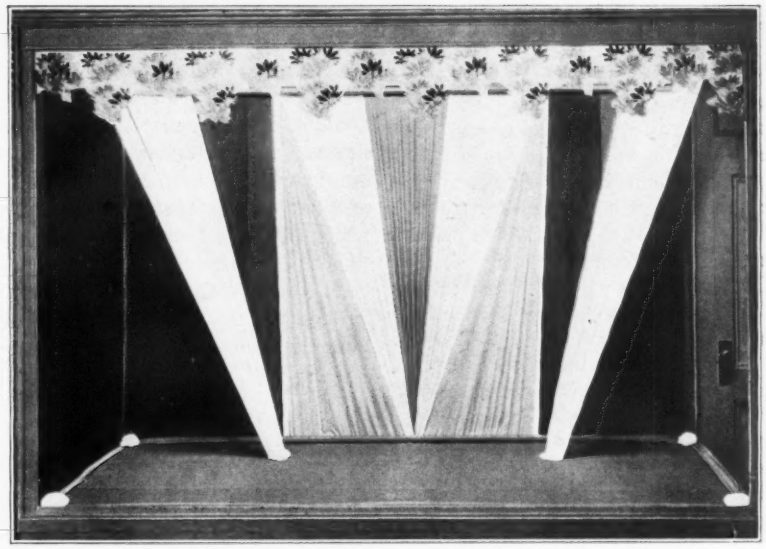
STEP 6. In the center of the win-



This is Window No. 1 as described in this article

* *Materials for the window displays are manufactured by Dennison Mfg. Co., and may be bought in your community.*

This is window No. 2 as described in this article



dow place a round finger edge wheel of No. 62 Canary, and over the Canary wheel, place another smaller disc of No. 55 Bluebird, having a bell in the center, cut from a fold of Decorated crepe No. X983. This unit is placed on the top edge of the drapes, having the Decosheen pulled into a point behind it.

STEP 7. Cover the base of the window with No. 84 Flame. Outline the margins of the base with tubes of Dec. crepe borders No. X12, and tack rosettes in the corners of No. 84 Flame.

Window Number Two

MATERIAL REQUIRED:

2 folds No. 55 Bluebird.
1 fold No. 62 Canary.
5 folds No. 44 Grass green.
2 folds No. 84 Flame.
1 fold Dec. crepe No. 406.

INSTRUCTIONS FOR INSTALLATION:

STEP 1. In the center of the window background place a drape of No. 84 Flame, converging on the base in the center of the background.

STEP 2. On either side of the center drape, tack a drape of No. 44 Grass green, also converging on the base of the window.

STEP 3. To the base of the window at either side of the drapes, tack a wide drape of No. 55 Bluebird. Each of these drapes is approximately 30 in. wide, using one and one-half widths of crepe. These are edged with tubes of No. 62 Canary.

STEP 4. Next, install the drapes of No. 44 Grass green which are pulled from each upper corner. At the extreme sides of the window background tack a 20 in. drape, and then next to this on the side walls, tack a drape 10 in. wide, both of No. 44 Grass green, and edged with tubes of No. 62 Canary. These drapes and tubes are left hanging until after the base has been covered.

STEP 5. Outline the margins of the window background with tubes of No. 84 Flame, and tack rosettes in the corners of No. 62 Canary.

STEP 6. Across the top of the window next to the glass, extend a valance of Dec. crepe, cut from a fold of No. 406.

STEP 7. Cover the base of the window with No. 44 Grass green, having a pointed cutout panel of No. 84 Flame across the front.

STEP 8. Outline the margins of the base with tubes of No. 84 Flame, and rosettes of No. 62 Canary, and pull the drapes and tubes into place on the base which were left hanging from the background, as shown in the photograph.

The Master Salesman

—the strategy of submitting estimates

A CONTRACTOR writes us a story of how he "opened the door and let his opponent in," almost losing the job as a result of his carelessness. We'll give you his story as he tells it:

"There are seven of us operating in the plumbing business in one town, and contrary to what I hear of other places, I guess we are pretty lucky to have a crowd that pull pretty well in harmony and for good business. The experience I want to tell about illustrates how the master plumber is too often inclined to put weapons in his opponents' hands.

"A certain property owner came into my office one day and showed me a set of plans for a house he was going to build. Wanted a figure on the plumbing and heating work.

"While working on the plans I noticed on the second floor that there was a short hall that ran across the center of the building with the back room opening off of one end and a store room of equal size and the same layout opening off the other end. Down stairs, the kitchen, all the piping, venting, etc., were set up under the store room. This layout made it necessary to break out the waste line vent and supply branches from a point in the cellar under the first floor and run them across the basement ceiling for a distance of ten feet to reach the necessary point, under the place designated for the bathroom. I saw its disadvantages and when I took my estimate to the owner, pointed out the fault I had discovered. After showing him the trouble he would have with stoppage in those waste lines, showed him how and why his vent lines would do a better service if they did not have to pull the gases so far from the fixtures, he instructed me to make a drawing of my idea and change the bathroom to where the store room was shown over the kitchen. I left my original esti-

mate with him and came back with his plans.

"I worked all that afternoon taking off a tracing of the first and second floor plan of the building and partitions, devoted that night and next morning to working in the new layout of the bathroom fixtures. My new specifications called for a much better type of fixtures which made a radical difference in my figures. These all rearranged, I made up my new estimate and took them along with my tracing down to the owner.

"When I went in he invited me to sit down and we went over the whole plan. If I do say it for myself, I seemed to be doing a good job at selling. He listened attentively to all my points about better sanitation, easier access to the equipment after installation and less material used in the new layout. We discussed it for a time and he said, 'Well, Mr. Herbert, leave these with me and I'll think it over.' That was a shock. I had spent hours on those plans and he asked me to leave them with him to think it over. He really wanted, of course, to get a bid from one of my competitors. It nearly cost me that job when I lacked the courage to tell him I thought it was an unfair request. I didn't tell him and I left the plans, specifications and whole layout, estimates too. I guess most anyone would when he picked up my estimate on the original job and said, 'You know you are quite a bit high on this estimate and I want to think it over.'

"I went out, feeling mighty blue as well as sore. When I got to my office I sat down to think it over. With the first thought in my mind, my hat was on and I was in my car driving back to his office as fast as I could get there. Going in I said to him, 'Mr. Brown, I've thought this thing over and I think one mistake in three days is about all I can afford to make.' 'What do you mean?' he asked. I looked him squarely in the eye and replied: 'Mr. Brown, it was perfectly fair bidding by which I came in high man on your first plan and I take my loss on that figure like a good sportsman. But I realize now, because of that figure, you intend to get a bid on the new plan, which I have created. You will concede it is unfair to me to let my competitors work on my plan and specifications so I have brought with me a large envelope and I want to seal that bid, plan and specification and let the other fellows do the same as I have, make up their own ideas, submit them, sealed.'

"He agreed and I sealed my plans and bid right there, leaving the whole with him to be opened at the time agreed. When the day finally arrived, I found there were three of us bidding, two of us had plans, the third merely written suggestions of the changes. I was again high man, but I got the contract and Brown explained afterward that he gave it to me because he thought if I had the courage to specify the higher grade, more expensive fixtures, I must be working on quality all the way through."

In DOMESTIC ENGINEERING for October 19, the Master Salesman proposed a sales problem, leaving the solution to our readers. The situation was not an unusual one, but was one in which careful handling of the prospect would result in a sale—while the sale would be lost as a result of lack of sales skill. In fact, as the Master Salesman described the situation, the contractor did actually lose the sale.

Fred Torres, a plumbing contractor at 644 Ezra street, Los Angeles, Calif. sends in the following solution:

"(1) The Master Plumber failed to show an interest in doing the repair work.

(2) The Master Plumber failed to sidetrack the customer into buying the water heater.

(3) The Master Plumber showed too much anxiety to sell the water heater.

I think it is always bad business to cut your own price like he did in the end."

THE ANALYSIS

This master plumber is a thinker. He doesn't accept what the surface shows, but digs in deeper to uncover the basic principles, which, after all, are the controlling factors. That he realized his first mistake in leaving the first estimate he proved by going back and requesting that all bids and suggested changes be sealed and opened at a given time. When he left the original bid he knew there were other bids for the same kind of a job, that could be submitted. He should have thought of that when he talked about the changes in the plans and realized that these other bids, if lower, would set up a discount for his chances of a preference under the revised plans. He saved himself by quick thinking and action in going back and making the owner seal his plan and bid, thereby placing every competitor on an equal footing. He would have done better not to have submitted his second figure at all, merely left his plan without specification of make of fixtures and because the plan was his creation, secured the preferred position of submitting his bid and specifications after the other bids had been received and considered. This was his right because the new plan was his idea and entitled him to a little more privilege than the competitors.

No builder has the right to expect the plumber to furnish him with information and then use that information against him for lower prices. The contractor does not stop to think of the builder's position of "buyer" and his tendency to use any angle in reach to force price down. So it was in this case; the plumber almost lost his contract by giving to the builder all he knew and in consequence almost gave his competitors the very weapons to defeat him.

Naturally, the competitors found the way to discover that this plumber was high on the first bid, given the same material, layout and basis to figure the revised plan, they would have a fair chance to underbid him on the second.

One of the surest ways of winning any job is by going after it in a manner entirely different from the ways of your competitors. And when you find that original way, keep it to yourself, for yourself. Going after business on a different principle disarms your competitor, he doesn't know how you are working and so finds it hard to anticipate your ideas.

You are, in fact, creating something new which gives you likewise a new standing with the customer, who feels that you are considering his interests in the matter as well as your own.

Standard Symbols *for* Heating Drawings

By J. H. WALKER*

WHY do we need standard symbols for heating and ventilating drawings? We need them for simplification, for accuracy and for convenience. It would be regrettable indeed if the broad movement toward standardization in all industries did not include an effort to clear up the confusion which often exists in the interpretation of drawings.

A drawing is intended to enable people to form

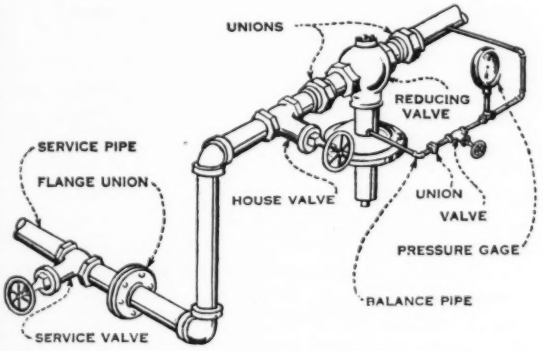


Fig. 1.—Drawings may be made to show the finished work with photographic exactness

a visual conception of a piece of work as it is to appear when completed. It may be a complete picture or may merely indicate the subject sufficiently so that one, more or less familiar with it, can immediately recognize what is intended. It may be almost a photographic representation of the finished work.

Consider for instance the pipe and fittings portrayed in Fig. 1. With a few dimensions added, this drawing could be used as a working drawing, for it certainly shows clearly what is intended. No one would need to use much imagination or would

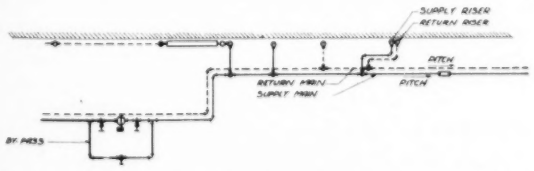


Fig. 2.—A portion of a heating system represented by the standard symbols of the American Society of Heating and Ventilating Engineers' Code

have any difficulty in visualizing the finished work. This drawing represents the extreme in what might be called pictorial representation, with no use of symbols. Of course, it would not be a practical method and is entirely too laborious and costly for ordinary drawings, although there are many kinds of piping work in which it is necessary to show the parts in careful detail in order to give an exact picture and to avoid interferences with other parts.

But now let us consider an ordinary heating installation. In heating systems it is rarely necessary for the designer to work out all dimensions in extreme detail and it is customary and convenient to make drawings on rather a small scale. For this class of work the use of symbols has a great advan-

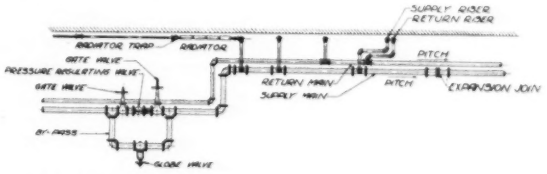


Fig. 3.—The piping shown in Fig. 2 drawn in detail

tage. For example, Fig. 2 shows a portion of a heating layout in which symbols are used, while Fig. 3 shows the same layout drawn up in complete detail. The comparison is rather absurd because no practical draftsman would use such a laborious method, but it serves to show how much we depend upon the use of symbols.

Symbols Must Be Universal

It was with the idea of furthering and of standardizing the use of symbols that the American Society of Heating and Ventilating Engineers included in its code of minimum requirements an appendix showing a recommended standard. Symbols must be standardized if they are to be used successfully. Drawings of a large project nowadays get into the hands of contractors in widely scattered cities and it is obviously necessary that a set of symbols convey the correct meaning to everyone. Therefore there must be a truly national standard rather than a mul-

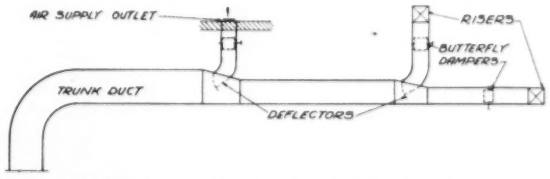


Fig. 4.—Standard symbols are also desirable in drawings of ventilating systems

titude of different methods of representation which vary with the whim of the individual.

In Fig. 5 are shown the complete set of symbols adopted by the A. S. H. & V. E. They include symbols for all of the common parts of both heating and ventilating systems and have already come into general use. They should be adopted as standard practice in every drafting room.

In working up this set of symbols the subcom-

* Chairman, Subcommittee of the American Society of Heating and Ventilating Engineers on Standard Symbols for Heating and Ventilating Drawings.

mittee were guided by some fundamental principles.

First, it was desired that they be easy to execute on the drafting board. The primary object is to save drafting room labor and simplicity of form was considered essential.

Second, they must convey by their appearance, some idea of the things they represent. A symbol indicating a gate valve should roughly resemble a gate valve so that it can be recognized without too great a stretch of the imagination.

Third, the meaning of each symbol must be unmistakable. There must be no duplication nor such close resemblance between different symbols that one might be mistaken for another.

Duplication of Symbols Among Trades

It is difficult, however, to avoid some duplication between the symbols used for the various trades. For example, we use a heavy solid line for a high pressure steam pipe and a light solid line for a low pressure steam pipe. Solid lines are also used in wiring diagrams. It would be impossible to invent enough different kinds of lines so that there would be absolutely no duplication, but there should be no confusion on that score.

These were the ideas upon which the A. S. H. & V. E. symbols were based. Before they were established a large number of tables of symbols were

(Continued on Page 98)

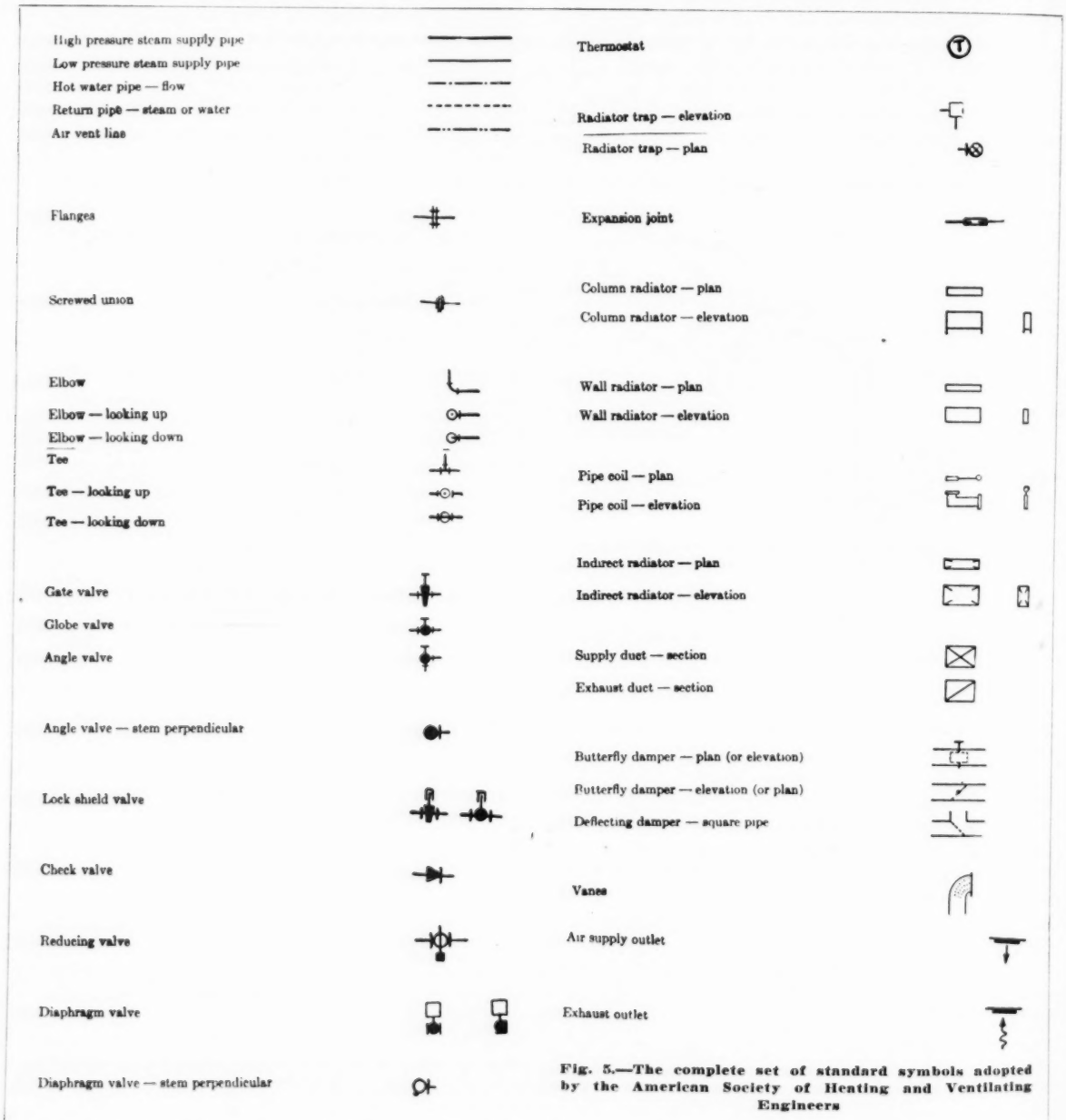


Fig. 5.—The complete set of standard symbols adopted by the American Society of Heating and Ventilating Engineers

The Physics of Plumbing

the movement of air and water in stacks — pipe capacities

By DR. R. B. HUNTER

WHILE the function of the different parts of the house drainage system are well known, and the principles on which each part operates are well understood, the interactions between the different parts are not so well known, nor are they easily understood or explained. I have no hope of being able to cover the subject fully and will be content if I am able to clarify any part of it. So far as I know there has never been a comprehensive statement and explanation of all the physical principles applying to a plumbing system. There are two reasons for this lack of definite knowledge of the operation of a plumbing system: First, the variable conditions which exist in a plumbing system in actual service and the resultant difficulty of determining and defining the physical conditions under which each part functions when connected in the system; and second, the manner in which practices in plumbing construction have developed to the present stage. By the latter I refer to the gradual increase in the size of plumbing structures to keep pace with the growth in the height of buildings, without a corresponding understanding of the physical principles on which the plumbing structure and its functions depend.

A vast amount of test and research work on plumbing has been done at various times, but for the most part it has been undertaken for the purpose of determining if some particular plumbing layout would function satisfactorily. There has never been any extended research directed to the discovery of fundamental principles and of applying them to the structure as a whole.

Sanitary engineers, plumbing inspectors, and plumbers have done remarkable work in developing plumbing construction, but it is not surprising that there is a wide divergence of opinion in respect to certain fundamental principles.

It was my privilege to work with the subcommittee on plumbing in the plumbing investigation conducted at the Bureau of Standards from 1921 to 1923, and to assist in the formulation of the Recommended Plumbing Code which appeared in their final report.

The tables for pipe sizes in the recommended code have been revised recently, and it is to the manner in which these tables were derived that I desire to direct the discussion.

Factors Needed for Determining Drain Sizes

Two factors are necessary for the determination of the proper size of drain pipe to use in any position: (1) The carrying capacity of drains of different diameters in the positions they are to be used, and (2) the peak loads the drains will be called upon to carry in those positions. Neither of these factors can be definitely determined for all plumbing systems because conditions, even in the same system, vary. We must be satisfied with estimates or approximations. The only safe procedure to insure a drain of sufficient capacity is to set the estimate on the capacity low and the estimate on the peak load high. This was the controlling thought in the derivation of all tables in the recommended code, though it was recognized that this process would result in drains larger than absolutely necessary in all except extreme cases.

Peak Loads in Plumbing Systems

The peak loads which occur in plumbing systems depend largely on chance. Occupancy, or frequency of use of the fixtures, is the controlling factor, but it determines only the average frequency of occurrence of loads of any given magnitude.

It is evident that the peak load from a single fixture, for example, a water closet, will be the peak discharge from the fixture and that it will occur with every full flush of the fixture. It is also evident that the peak load from two water closets will be the sum of the peak discharges from each and that it will occur only at infrequent intervals, the frequency of occurrence depending on the occupancy or frequency of use of the two fixtures. As the number of water closets in one system increases, the chance or probability of the total number being flushed at the same time becomes more and more remote, until with more than three water closets on a system there is light chance that, in normal service, all of them will ever be flushed at exactly the same time. If the frequency of use for each fixture were constant we would be able to compute from the law of probability the average frequency with which any selected load from a given number of fixtures might be expected to occur. We can assume a frequency of use equal to the highest observed frequency with full occupancy and compute a relation between the probable peak load and the total number of water closets for any selected average frequency of occurrence, such as once a year, once in 10 years, etc.

Frequency of Use

These computations indicate that if a load equal to the sum of the discharges from any given number of water closets out of a given total occurs in the order of once a year, a load greater than that by one water closet discharge will occur on the average in the order of

once in 100 years. For example, the computed average frequency of a load of five water closets, out of a total of ten, is once in four years, allowing for a frequency of use of each water closet once every five minutes for three hours daily. The computed average frequency of the occurrence of a load of six water closets, out of a total of ten, on the same time basis is once in 226 years. While these computed values have no very definite meaning when applied to a particular system, unless the factors are chosen to apply directly to it, they do show the manner in which the peak loads vary with the number of fixtures. The factors used in the computations can be so selected that we may be reasonably certain that if the peak loads, thus estimated, are ever exceeded in service, they will be exceeded by such small amounts relative to the load, and at such infrequent intervals, that the excess is negligible. Factors of safety provide for such excesses.

I have avoided the details of these computations which are complicated and difficult to follow. I believe, however, that you will be interested in some of the results obtained. The table which follows shows the loads computed as occurring on the average of once in 10 years, allowing an average frequency of use of each fixture once in five minutes for three hours daily. It will be observed that these estimated peak loads vary from 100 per cent in small to about 8 per cent of the total possible load in very large installations:

Table of Frequencies

Total number of fixture units in the system	Load occurring once in 10 years	
	In fixture units	% of total
18	18	100
48	24	50
240	60	25
1008	126	12.5
4200	336	8

The fixture unit is a rate of discharge of 7.5 gallons (1 cu. ft.) per minute, this being the approximate rate of discharge from a full wash basin. Other fixtures are assigned a fixture unit equivalent proportional to their maximum rates of discharge, a water closet being equal to six, a bathtub equal to two fixture units, etc. The total number of fixture units on any system is to be determined by multiplying the number of each kind of fixture by the fixture unit equivalent and adding the products.

This is not entirely a new point of view. It is clear to any one who has given it thought that there is slight chance of all the fixtures in a plumbing system being flushed at the same time, and most plumbing codes make some provision for this, either directly or indirectly. Some codes allow for a fixed percentage of the total, as 20 per cent or 25 per cent, regardless of the total number of fixtures. The result of such a fixed allowance is an underestimation of the load for small or an overestimation for large systems, provided it is right for either.

The plan described for estimating the peak load factor was accepted by the Subcommittee on Plumbing as a distinct advance in the direction of the proper sizing of drain pipes. We believe the values used still give higher estimates than are necessary and we recognize that the method can probably be improved by measuring, or observing, over long periods of time, the loads that occur in plumbing systems in actual service.

Capacities of Plumbing Stacks

The flow of water in plumbing stacks presents an interesting problem. We have standard formulas for computing the carrying capacities of water pipe flowing full under pressure, from the pressure, the diameter and a friction factor. There are also similar formulas available for computing the carrying capacities of sloping pipes under gravity flow, from the slope, the diameter, and a friction factor, depending on the material in the pipe. These friction factors have been determined experimentally and apply to steady flow in either full or partially filled pipes.

The formulas for gravity flow in sloping pipes may be modified for computing the carrying capacities of vertical pipes under gravity flow. It will be necessary, however, to determine the frictional factors for vertical pipes by actual measurements.

There is one distinct difference between the flow of water in partially filled vertical and partially filled sloping pipes. In a vertical pipe the water spreads out and when the volume is sufficient covers the inner wall of the pipe. In the sloping pipe the flow is along the lower side of the pipe. In both sloping and vertical pipes the velocity of flow reaches a constant maximum, to which we may refer as the critical velocity, and at which the frictional resistance of the pipe equals the force acting on the water in the direction of flow. In the vertical pipe the full force of gravity acts on the column of water, while in the sloping pipe only a component of this force, depending on the slope, acts in the direction of flow. For example, in two pipes of the same diameter and filled to the same extent, one vertical, and the other sloping with a fall of ¼-in. per ft., the force acting in the vertical pipe is about 48 times that acting in the direction of flow in the sloping pipe. For this reason much higher velocities are attained in the vertical than in the sloping pipe of the same diameter when filled to the same extent.

Measurements on Velocities in Stack

We have made some measurements on the velocities attained in a vertical 3-in. cast iron pipe, with water introduced through side inlets at the top, at volume rates of 100 and 200 gallons per minute. The velocity attained at a point 45 ft. below the inlet, for a volume of 200 gal. per minute, was found to be about 32.5 ft. per second. From these data we were able to compute approximately the maximum velocity attainable in the same pipe under gravity flow with a full pipe, and from this, the maximum carrying capacity of a vertical 3-in. cast iron pipe. These computations give a capacity for a vertical 3-in. pipe of about 1,400 gallons per minute as against a computed capacity of 51 gallons per minute for the same pipe laid with a fall of ¼-in. per ft.

In this connection it should be noted that a vertical 3-inch pipe will be completely filled at the inlet by a stream introduced through a Y-branch at the rate of 200 gallons per minute. This stream of water increases its velocity from that point downward until the maximum is reached. As the velocity increases, the stream thins out and at any point below the inlet the pipe will be only partially filled. We should note also that at the inlet the acceleration is almost the acceleration of gravity, and

(Continued on Page 136)

Water Pressures *and the* House Tank

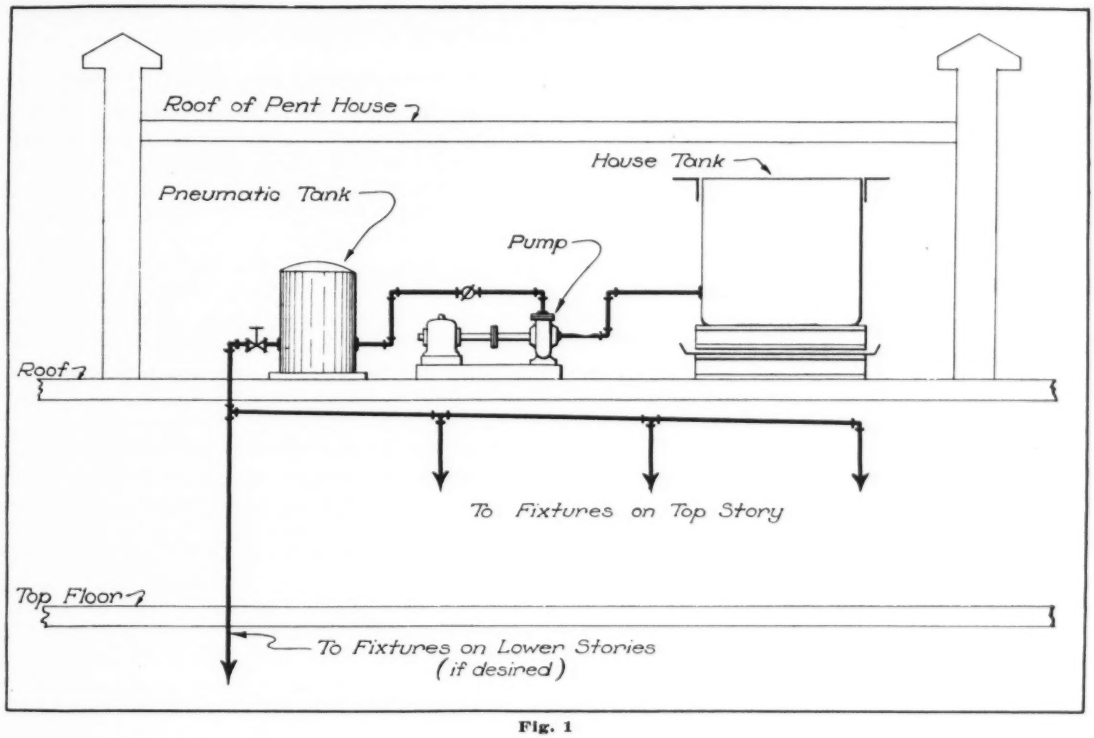


Fig. 1

By HAROLD L. ALT

HIGH pent houses on the tops of buildings often are objectionable from an architectural standpoint and for this reason house tanks placed practically on the roof level are often very desirable. When this is done the water pressure on the fixtures located on the top floor, and even the floor below the top, will be low, and, with some equipment, altogether too low to give satisfactory operation.

Head Available

If the clear height in the top story is assumed at about 10 ft. and the thickness of the roof beams and roof slab as about 18 inches and the bottom of the tank sets 24 inches above the roof and 6 feet of water is in the tank, the total distance from the water line in the tank to the top floor in the building will be

10 ft. 0. inch
1 ft. 6 inches
2 ft. 0 inch
6 ft. 0 inch

19 ft. 6 inches, or practically 20 ft.

The distance from the water line in the tank down to the second floor below the roof (with a 10-ft. story height) will be

19 ft. 6 inches
10 ft. 0 inch

29 ft. 6 inches, or about 30 ft.

Off of this must be taken the height of the fixture inlet above the floor and an allowance for pipe friction. On a water closet with a flush valve the inlet is about 18 inches above the floor and on a lavatory about 2 ft. 6 inches above the floor and on a kitchen sink about 3 ft. 6 inches above the floor. If a half-pound drop in pressure is allowed for line loss, this is equal to about 9 inches of head, so it will be seen that the real head on a water closet, lavatory and sink on the top floor will amount to

	Water Closet	Lavatory	Sink
	19 ft. 6 inches	19 ft. 6 inches	19 ft. 6 inches
Less	1 ft. 6 inches	2 ft. 6 inches	3 ft. 6 inches
or	18 ft. 0 inch	17 ft. 0 inch	16 ft. 0 inch
Less friction	9 inches	9 inches	9 inches
	17 ft. 3 inches	16 ft. 3 inches	15 ft. 3 inches

and on the floor below will be

	Water Closet	Lavatory	Sink
	29 ft. 6 inches	29 ft. 6 inches	29 ft. 6 inches
Less	1 ft. 6 inches	2 ft. 6 inches	3 ft. 6 inches
	28 ft. 0 inch	27 ft. 0 inch	26 ft. 0 inch
Less friction	9 inches	9 inches	9 inches
	27 ft. 3 inches	26 ft. 3 inches	25 ft. 3 inches

To obtain the pressure in pounds per square inch when the head in feet is known it is only necessary to multiply the head in feet by 0.43 lb.

So for a water closet on the top floor the water pressure will be

17 ft. 3 inches × 0.43 lb. or
17¼ × 0.43 = 7.43 lb.
and for a water closet on the floor below
27 ft. 3 inches × 0.43 lb.
27¼ × 0.43 = 11.72 lb.

Sinks, of course, will have less pressure at the outlet because the outlet is higher up, this pressure for sinks on the top floor being
15 ft. 3 inches × 0.43 lb. or
15¼ × 0.43 = 6.56 lb.
while for the floor below the sink pressure will be
25 ft. 3 inches × 0.43 or
25¼ × 0.43 or 10.86 lb.

Lavatories will fall between the figure for water closets and the figure for sinks, because the lavatory faucet is lower than a sink faucet but higher than the flush valve level. Where automatic flush tanks are used on urinals these are the worst of all, as they are frequently 6 ft. to 7 ft. above the floor.

Weak pressure also seriously affects drinking fountains of the bubbler type, which require a reasonable amount of pressure in order to bubble properly.

Increasing the Cold Water Pressure

One solution of this difficulty is the placing of the fixtures (where increased pressure is desired) on a separate line which is fed by a small pneumatic tank located in the pent house next to the house tank. This is illustrated in Fig. 1, and it will be noted that no storage capacity in particular is required in the pneumatic tank, as the pump takes its supply from the house tank and the pneumatic tank only acts as an air cushion on the system and to take up small fluctuations in the rate of draw-off. It is essential, however, that the maximum capacity of the pump exceed the maximum rate of draw-off from the fixtures.

The pressure carried on the pneumatic tank may be small, hardly even exceeding 20 lb., and the quantity of water used for one or two floors is also comparatively small. As a result the amount of electric power required and the electric current consumed is very little.

Increasing the Hot Water Pressure

It has not proved to be very practical to undertake to raise the pressure on the entire hot water system by taking the cold water supply for the hot water system off of the pneumatic tank, which might seem to be the logical thing to do. In the first place the pneumatic pump would then have to pump not only the cold water used on the top floors but also the hot water used on all floors. This not only means a considerable increase in pump capacity and electric current consumed but also pumping water for a lot of lower floors, where additional pressure is absolutely unnecessary. Besides this, there is also an unbalancing of cold water pressure and hot water pressure on all the lower floors, which is undesirable where combination faucets or showers are used.

A solution that does not include these objections is to put the same fixtures on the top floors, which are supplied from the pneumatic tank, on a separate hot water system with a gas heater and hot water storage tank with thermostatic control located in the pent house. The cold water supply for this heater, of course, must come from the pneumatic tank, and when this is done all fixtures supplied with cold water from the pneumatic tank are also supplied with hot water at the same pressure as the cold. This is illustrated in Fig. 2.

Naturally with a hot water heater at the top of the building it is not possible to get gravity circulation through the lines supplied by this heater. Either these lines must be run dead-ended or a very small circulating pump and return line can be used for forced circulation as indicated in dotted lines on the drawing.

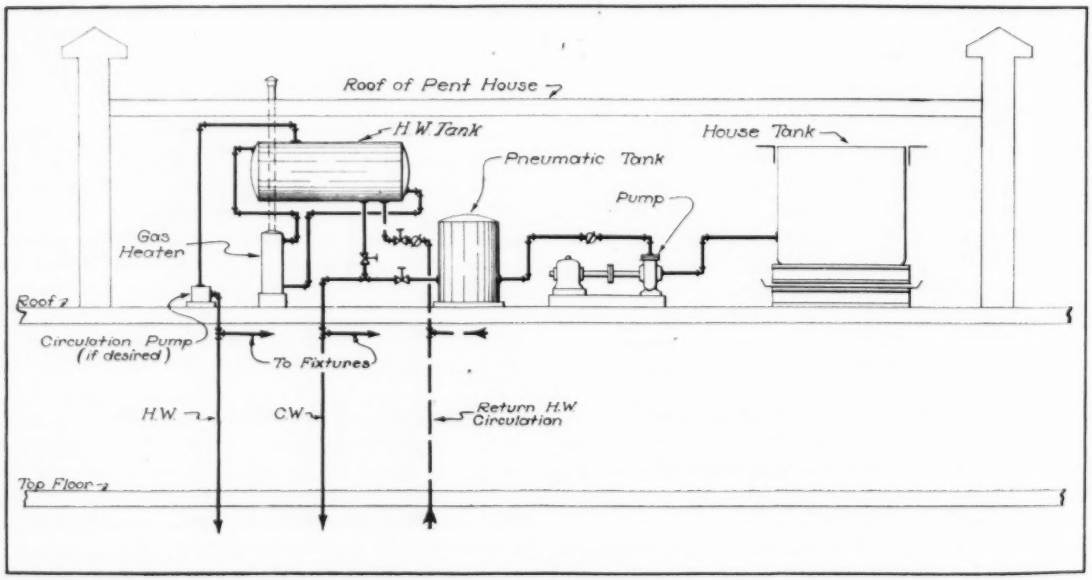


Fig. 2

This tabulation is the third in a program designed to give the plumbing industry a concise source of information on codes

Plumbing Code Tabulations

By R. M. STARBUCK, JR.

Article No. 3

IN A previous article we showed the tabulation of certain information contained in the plumbing codes of 120 municipalities in the states from Alabama to Louisiana, arranged alphabetically by states, also by cities and towns.

In this article we shall continue the same tabulations for 83 more cities. About 200 more will be tabulated in a later article.

The tabulation has to do with some of the leading features of enforcement of plumbing laws, organization, etc.

Massachusetts Requirements

Probably in the state of Massachusetts the most radical stand is now being taken concerning the requirements the plumber must be able to meet. We have related this circumstance on a previous occasion, but it will bear repetition in connection with our present subject.

At the 1928 conference held by Massachusetts Institute of Technology for the plumbing trade of Massachusetts, attended by 500 men, and again at the 1929 conference, the chairman of the Massachusetts State Board of Plumbing Examiners, who is also a member of the Massachusetts Institute of Technology faculty, told his audience that it was the definite policy of his board to make the plumbing examination harder each year, until a point had been reached which would require a very much better knowledge than had previously been necessary.

This statement points the way the plumber must go, we believe, and it of course behooves him to prepare for it. We think it is no different however, in our own line of business than in any other,—every line that is worth anything requires education.

We might add incidentally that the above named state chairman in both addresses, pointed to the plumbing trade press as the logical source of instruction in the meeting of these advanced educational requirements for the plumbing trade.

Examining Boards

Many and varied are the different requirements in the examining of candidates for plumber's license in various municipalities, and in the make-up of the examining board.

Probably it may be said that these boards most generally are made up of five members. The Michigan state law, which governs cities of 15,000 or over, gives the make-up of such boards as very generally followed, as follows:

"Such board shall consist of five persons, of whom one shall be an employing or master plumber of not less than ten years' experience in the business of plumbing, and one shall be a journeyman plumber of like experience, and the other members of such board shall be the officers in charge of the plumbing and drainage department of the board of health of such city, and the chief engineer having charge of sewers in such city, but in the event of there being no such officers in such city, then any other two officers having charge or supervision of the plumbing, drainage or sewage, whom the mayor shall designate and appoint, or two members of the board of health of such city having like duties or acting in like capacities."

The plumbing inspector should be a member of the examining board, and the foregoing provides for this.

In most cases, we believe, plumbing examinations are made up of three parts: 1,—practical work; 2,—theory, and 3,—interpretation and correction of plans and elevations of plumbing.

Very few plumbing codes are sufficiently explicit in this respect. We believe that the nature of the requirements of the examination should be made clear.

From our own observations, it would seem that a written examination is generally more fair than an oral examination. Both methods are followed.

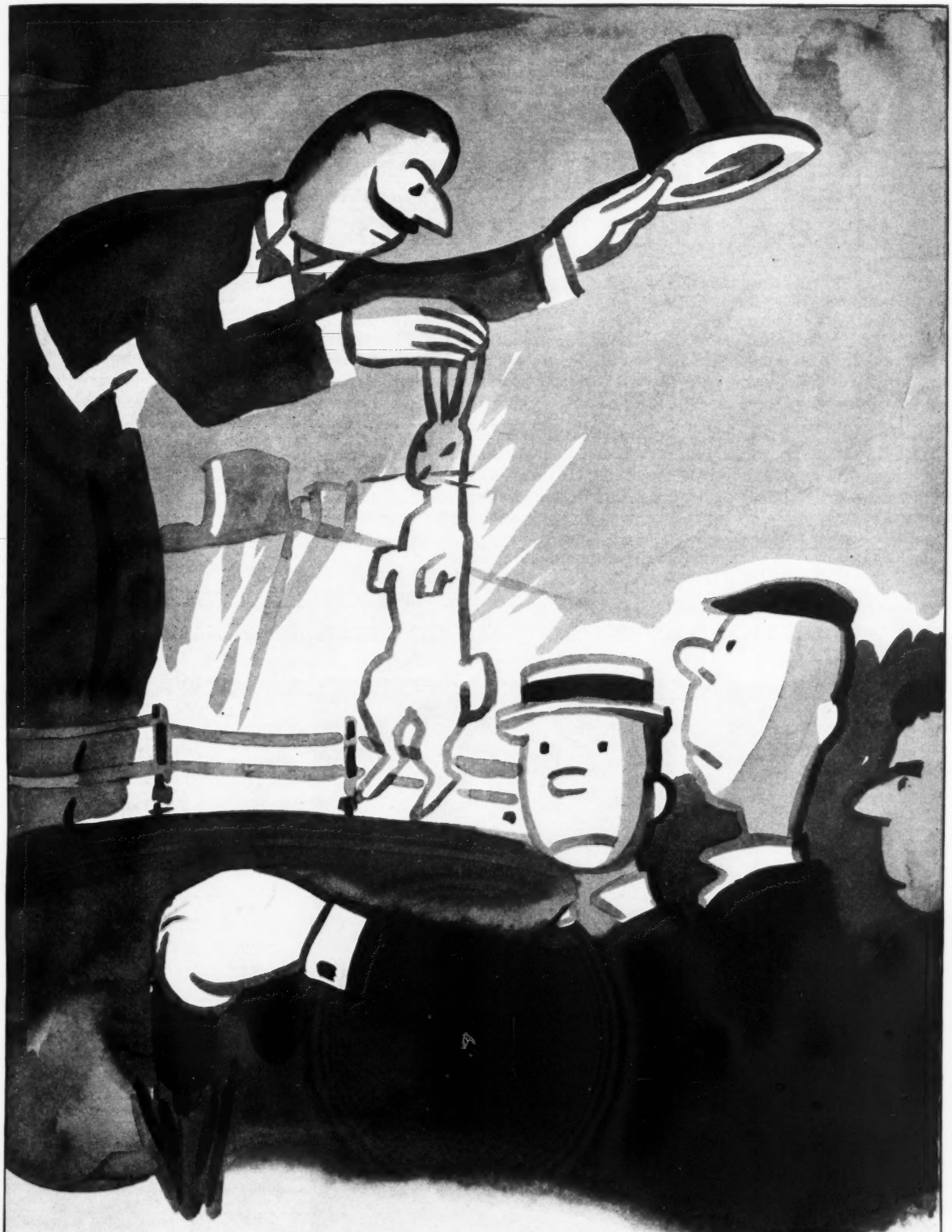
The plumbing code of Battle Creek, Mich., has a section which seems to us to set forth requirements clearly. This and a following section, are quoted:

"APPLICATION FOR EXAMINATION.—Application for examination as a journeyman, employing or master plumber will be received by the clerk of the board, who will furnish the applicant, at the time of examination, with a list of questions which must be answered in writing. The applicant shall state, in his own handwriting, that he is the party directly interested in the certificate, giving his full name and address, street and number, his term of residence in the city, and the names of the parties, firms or corporations in whose service he has been. He shall also state his business or employment during the five years immediately preceding the date of application, as well as the number of years during which he has been engaged in the business, trade, or calling of plumbing. The examination will be of such a character as to test the fitness and qualifications of the applicant for the trade, business or calling of journeyman, employing or master plumber, who must have a standing of at least 70 per cent in his examination to be entitled to a certificate.

"FALSEHOOD OR FRAUD IN EXAMINATION.—Falsehood or fraud in the examination shall be sufficient cause for a refusal of his certificate, together with the dismissal of his application, and if certificate is granted, the same shall be void and of no effect. Upon failure to pass the required examination, another will not be granted until after the expiration of one month from the date of examination."

Licenses are issued to masters and journeymen for

City	Examination of Masters and Journeymen. License without Examination. Registration only	Bond Required of Master Plumber	License Fee Required of Master Plumber	Examination and Approval of Plans and Specifications before Granting of Permit	Fees Collected for Permits and Inspections	Testing of Plumbing System
Maine						
Biddeford	Registration only		$1		Permit $1.00; inspection $3.50; 25c per fixture over 15 fixtures	Water or air 1st; smoke final.
Lewiston	Registration only					Water or peppermint 1st; no other mention.
Portland	Exam. for M. P. and Jour.			Yes		Water 1st; peppermint, ether or smoke final.
Maryland						
Baltimore	Registration only	$1000		Yes	$1.00 for 1st fixture; 25c for each additional fixture	Water 1st; no final mentioned.
Cumberland	Registration only			On request	$1.00 for each permit over $20	Water 1st; peppermint final.
Hagerstown	Registration only			Yes		No mention.
Massachusetts						
Barnstable	Exam. of M. P. and Jour.					Water or air 1st; no final mentioned.
Belmont	Exam. of M. P. and Jour.			Yes		Water 1st; no final mentioned.
Brookline	Exam. of M. P. and Jour.					Water 1st; no final mentioned.
Concord	Exam. of M. P. and Jour.					Water 1st; final required but not specified.
Everett	Exam. of M. P. and Jour.			Yes		Water 1st; no final mentioned.
Falmouth	Exam. of M. P. and Jour.			If required		Water or air 1st; no final mentioned.
Framingham	Exam. of M. P and Jour.			Yes		Water 1st; no final mentioned.
Haverhill	Exam. of M. P. and Jour.					Water 1st; peppermint final.
Holyoke	Exam. of M. P. and Jour.			Yes		Water 1st; no final mentioned.
Lowell	Exam. of M. P. and Jour.					Water 1st; peppermint final.
Lynn	Exam. of M. P. and Jour.			Yes		Water 1st; no final mentioned.
New Bedford	Exam. of M. P. and Jour.					Water 1st; no final mentioned.
Newton	Exam. of M. P. and Jour.			Yes		Water 1st; no final mentioned.
Pittsfield	Exam. of M. P. and Jour.					Water or smoke 1st; no final mentioned.
Quincy	Exam. of M. P. and Jour.			If required	Building with 4-inch stack or larger, $3.00; other work $1.00	Water 1st; no final mentioned.
Revere	Exam. of M. P. and Jour.					Water 1st; no final mentioned.
Salem	Exam. of M. P. and Jour.					Water 1st; air final.
Saugus	Exam. of M. P. and Jour.			Yes	$2.00	Water test implied.
Springfield	Exam. of M. P. and Jour.					Water 1st; no final mentioned.
Swampscott	Exam. of M. P. and Jour.					Water 1st; no final mentioned.
Waltham	Exam. of M. P. and Jour.			Yes		Water 1st; no final mentioned.
Woburn	Exam. of M. P. and Jour.					Water 1st; no final mentioned.
Worcester	Exam. of M. P and Jour.			Yes		Water 1st; peppermint final.
Michigan						
Battle Creek	Exam. for M. P. and Jour.	$1000	$2	Yes		Water 1st; smoke, air or peppermint final.
Bay City	Exam. for M. P. and Jour.		$2	On request		Water 1st; no final mentioned.
Birmingham	Exam. for M. P. and Jour.	$500	$5		Each Stack $1.00; each fixture 25c	Water 1st; smoke final.
Coldwater	Registration only				Mentioned but not specified	Water or air 1st; no final mentioned.
Detroit	Exam. for M. P. and Jour.		$2—Renewal $1	Yes		Water 1st; smoke final.
Flint	Exam. for M. P. and Jour.			Yes	$1.00 for 50 ft. sewer or under; 1c for each additional foot	Water (smoke in winter) 1st; no final mentioned.
Grand Rapids	Exam. for M. P. and Jour.					Water (smoke in winter) 1st; no final mentioned.
Ironwood	No mention	$1000 to $5000 as determined by Water Superintendent				No mention.
Jackson	Exam. for M. P. and Jour.	$1000	$20—Renewal $12	Yes		Water (smoke in winter) 1st; no final mentioned.
Kalamazoo	Exam. for M. P. and Jour.	$3000	$5			Water (smoke in winter) 1st; no final mentioned.
Lansing	Exam. for M. P. and Jour.	$2000	$50—Renewal $25			Water or smoke 1st; no final mentioned.
Muskegon Heights	Exam. for M. P. and Jour.	$1000	$2	Yes	Roughing $1.00; fixture up to 8, $1.00; additional fixtures 25c each	Water 1st; smoke, air or peppermint final.
Owosso	Registration only	$1000	$25			Water 1st; smoke, air or peppermint final.
Pontiac	Exam. for M. P. and Jour.	$500	$5		Stacks $1.00 each; each fixture 25c; minimum $2.00	Water 1st; no final mentioned.



"Willie, was we up any closer we'd be in that magician's lap."
"First row, Albert, that's us; way up in front— just like the Hays Double-Seal Connection."

City	Examination of Masters and Journeymen. License without Examination. Registration only	Bond Required of Master Plumber	License Fee Required of Master Plumber	Examination and Approval of Plans and Specifications before Granting of Permit	Fees Collected for Permits and Inspections	Testing of Plumbing System
Royal Oak	Exam. for M. P. and Jour.	$2000	$15—Renewal $5		As may be required by city commission	Water (smoke or air in winter) 1st; no final mentioned.
Saginaw	Exam. for M. P. and Jour.		$25		$1.00 plus 50c for 1st W. C., each additional W. C. 25c	Tests implied.
Minnesota						
Duluth	No mention			Yes	25c for each fixture; minimum $1.00	Air 1st; no final mentioned.
Hibbing	No mention		$25—Renewal $1			Water or air 1st; no final mentioned.
Minneapolis	Licensed					Air 1st; no final mentioned.
Northfield	Licensed	$1000			$3.00	No mention.
St. Paul	Exam. for M. P. and Jour.	$1000	$35		50c plus 15c for sink or wash trays; 10c for single wash trays, garage floor drain and catch basin, each refrigerator, bell trap or F. D.; other common fixtures 25c each	Air 1st; no final mentioned.
Virginia	Licensed				Drains plus 1 fixture, $1.00; each additional fixture 50c	Air or peppermint; no other mention.
Mississippi						
Jackson	Licensed	$2000		Yes	Sewer connection $1.50; each fixture up to 25, $1.00; over 25, 50c each	Water 1st; no final mentioned
Missouri						
Bowling Green	Exam. for M. P.	$1000			$1.00 for each inspection	Water 1st; no final mentioned.
Kansas City	Exam. for M. P. and Jour.	$5000	$10—Renewal $5		$1.00 for 1st fixture; each additional fixture 50c	Water 1st; no final mentioned.
St. Joseph	Exam. for M. P. and Jour.		$2—Renewal $1			Water 1st; no final mentioned.
St. Louis	Exam. for M. P. and Jour.		$5		$1.00 for each inspection; 25c for each fixture	Water, air, smoke and peppermint.
Sedalia	Exam. for M. P. and Jour.		$5			Two tests implied.
Montana						
Billings	Exam. for M. P. and Jour.				$1.00 for 1 or 2 fixtures; 50c for each additional fixture	Water or air 1st; final test as deemed necessary.
Butte	Exam. for M. P. and Jour.	$2000	$2.50		$1.00 for inspection; $1.00 for each 6 fixtures or fraction	Water or air 1st; no final mentioned.
Great Falls	Exam. for M. P. and Jour.	$2000	$10	Yes	1 to 4 fixtures, 50c each; 25c for each additional fixture	Water or air 1st; no final mentioned.
Nebraska						
Holdrege	No mention				Dwellings, 50c for each fixture; maximum $4.00; public bldgs., 50c for each fixture up to 8; 25c each additional	Water, air or smoke 1st; no final mentioned.
Lincoln	Registration only	$2500	Registration fee $50		$1.00 for each fixture up to 50; 50c for each additional	Water or air 1st; no final mentioned.
Omaha	Exam. for M. P. and Jour.	$1000	$50—Renewal $5			Water or air; no final mentioned.
New Hampshire						
Concord	Exam. for M. P.					Water 1st; no final mentioned.
Laconia	No mention	$500		Yes	Sewer permit $5.00	Water 1st; no final mentioned.
Manchester	Exam. for M. P. and Jour.		$1—Renewal 50c			Water 1st; no final mentioned.
New Mexico						
Albuquerque	Exam. for M. P. and Jour.	$2000		Yes	$1.00 for each inspection	Water or air 1st; peppermint final.
New Jersey						
Asbury Park				Yes	$2.00 for inspection of plans	Air first; smoke final.
Atlantic City	Exam. of M. P.'s	$1000	$20—Renewal $5	Yes		Inspection only mention.
Bayonne	Registration only			Yes	For work over $100, $2.00	Water first; smoke or air final.
Belmar	Registration only			Yes	Inspection of plans, testing, etc., $2.00	Air first; no final mentioned.
Bloomfield	Exam. for M. P. and Jour.	$500	$2	Yes		Water first; smoke, peppermint, etc., final.
Bound Brook	Exam. for M. P.			Yes	Filing of plans $1; inspection of not over 5 fixtures $2; each additional fixture, 50c	Water first; no final mentioned.
Bridgeton	No mention			Yes	50c for each fixture	Smoke or peppermint when required by inspector.
Burlington	Registration only				Permit and inspection $1	No mention.
Camden	Exam. for M. P.		$25	Yes	$2 for each house of 10 fixtures or less; 25c for each additional fixture	Air water, smoke or peppermint; no final mentioned.
Carteret	No mention			Yes	$2.00	Water; smoke, etc., final.
Clifton	Exam. of M. P. and Fore.	$500	$2	Yes	$2.00 plus 50c for each fixture and outside rain leader	Smoke, water or air at option of inspector.
Collingswood	Registration only		$2.50—Renew'l $1	Yes		Water or air; no final mentioned.
Cranford	Exam. of M. P.	$500		Yes	$2.00 for inspecting plans and work	Water; smoke final.
Dunellen	Exam. of M. P. and Fore.	$1000	$25—Renewal $2	Yes	$3.00 plus 50c for each fixture over 5	Test implied.
East Orange	Exam. of M. P.	$500	$5	Yes	New buildings—$2.50 for each $1000 or fraction. Alterations—$100 to $500, $2; $500 to $1000, $2 additional; each $1000 or fraction additional, $2	No mention.
East Rutherford	Exam. of M. P.			Yes	$2 for inspection plans and work	Air, water or peppermint; no final mentioned.

-*the* HAYS DOUBLE SEAL CONNECTION IS FAR UP FRONT IN THE COPPER PLUMBING FIELD

There is a good reason why the Hays Double-Seal Connection stands out above all others. *It is this:* instead of one point of contact between the pipe and the Connection, Hays has provided two—because it takes two for both the tightness and strength to make joints permanently leakproof.

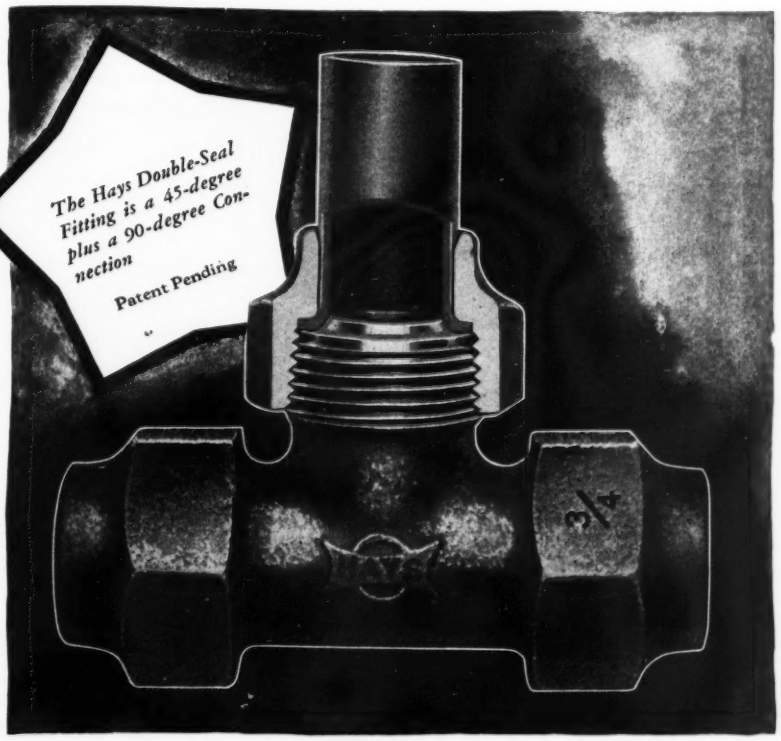
And by using this Connection, the Hays Copper Plumbing Method provides a plumbing system that is leakproof and troubleproof. Here is plumbing truly permanent in every way—plumbing that stands out by reason of its economical cost, and the years of uninterrupted service to the homeowner. Don't think you sacrifice profit to work with copper piping. Better plumbing should give you a better profit—and it does. You have something for your old customers and something that brings new customers. This Method builds business for good plumbers—and good plumbers will make the most of it. Write for details.

HAYS MANUFACTURING COMPANY · ERIE, PA.

★Exclusive with Hays—this double-seal provides double strength, safety and ease of installation.

The 45-degree seat of the fitting holds the pipe in a wedge, making a seal that is absolutely tight.

The 90-degree seat is the shock absorber. It (1) locks the pipe, (2) provides a second seal of positive tightness and (3) protects the 45-degree seal by absorbing all pulling strains and vibrations.



HAYS DOUBLE SEAL CONNECTIONS

Easily Equal to the Toughest Job

HIGH pressure or low pressure, factory, home, school or office building, a Sherwood Ball Cock in the closet tanks, means that even the toughest job is "licked."

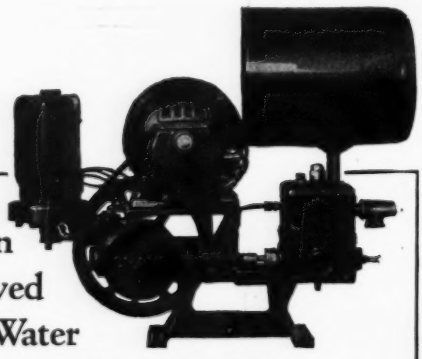
No whistling or gurgling and NO LEAKING—these are the points that have distinguished the Sherwood and put it up before the old, uncertain ball cocks of other, less scientific days.

Furnished with any size shank for any standard job. Through your jobber with the least delay.

SHERWOOD BRASS WORKS
Jefferson and Mt. Elliott Aves.
DETROIT, MICH.

REPRESENTATIVES

SHERWOOD Ball Cocks



Now an Improved Crane Water System for only $75

A higher capacity—a lower price—and more carefully designed throughout—this briefly summarizes the newest Crane Shallow Well Water System, No. 252.

What engineering skill entered into its construction—what dependability and simplicity of operation it represents, these can only be conceived when you consider it the latest achievement of 74 years manufacturing.

Certainly to the plumbing world it offers a new lever with which to open markets away from city supply mains. At the price of $75 there is no average family that cannot well afford it, and having once purchased it, no family that will not be a prospect for an amplified plumbing system. Write for information.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVENUE, CHICAGO
NEW YORK OFFICE: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Eighty Cities

a period of one year, at which time they may be renewed.

Diversity Among Plumbing Codes

Since writing the previous article there has come to our attention the chapter in the Hoover report entitled "Present Status of Plumbing Regulations." It is quite to the point concerning several features of our work, and corroborates the experience we have had regarding plumbing codes. Therefore we give a part of it, as follows:—

"The committee has collected a large number of plumbing codes, state laws and local ordinances, and given them careful study. The situation may be described as chaotic.

"Some states have no laws which regulate plumbing other than local enactments. A few states have mandatory plumbing laws, state-wide in scope. Some have laws mandatory for cities of a certain size, or for cities and towns having public water supplies. Others require cities to adopt ordinances regulating plumbing. Still others have permissive acts. There is an utter lack of uniformity in legal procedure governing these matters.

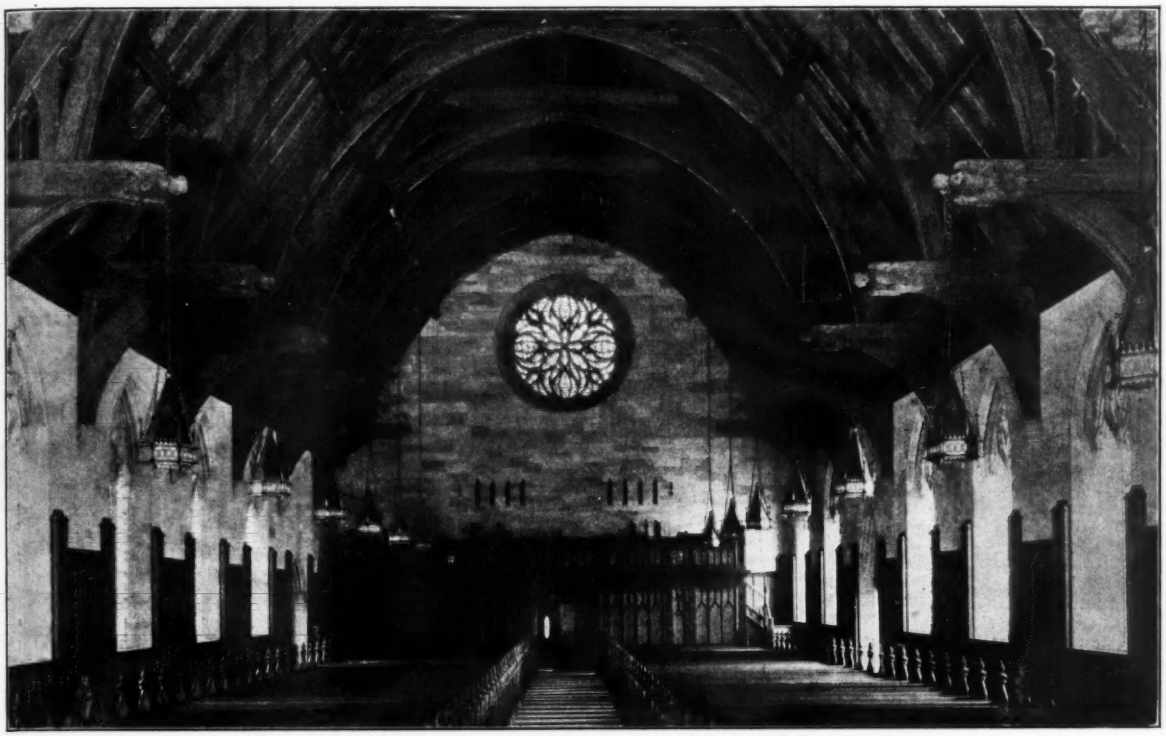
"In the matter of administration, some cities and some states require master plumbers and journeymen to be licensed, but some cities do not require licenses, even though there are plumbing ordinances. The method of permit and inspection is almost universal, where there is any regulation at all, but sometimes the inspection is under a board of health, sometimes under a building department, occasionally under a special plumbing inspector, and, in a few instances, under a water department.

"In the matter of codes, the lack of uniformity is even greater. Some state codes are simple in their provisions; others set forth rules of plumbing practice in great detail. In many states the different cities have different codes. In one state there is a permissive state code, as well as many city codes resulting from local enactments.

"Going further into detail, it is found that there are unaccountable differences in the regulations. Thus, in one state, where the whole subject of plumbing has recently been under investigation, some cities require the use of the running trap, other near-by cities prohibit its use, and some allow its use to be optional with the owner. Minor differences in regulations in different parts of the country may sometimes be justified on account of different climatic or local conditions, but the many radical differences found in the cities of a single state are unjustifiable.

"Nearly all of the present plumbing codes are applied in their entirety to all of the buildings within the limits of their jurisdiction. Compiled originally for dwellings, they have been extended to other types of buildings, but proper discrimination has not always been made between high and low buildings, single or multiple, public or private, or between buildings used for different purposes. It is natural, perhaps, that codes should have developed in a rigid way, because the first code drawn was based on the requirements of a single city. Subsequent codes have been influenced by precedent, local pride, and selfish

(Continued on Page 97)



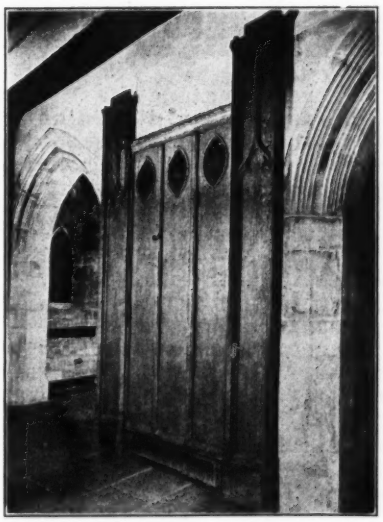
Nave of St. Paul's Church looking towards the entrance, Chestnut Hill, Pennsylvania.
Zantsinger, Borie & Medary, Architects, Isaac H. Francis, Engineer. P. Gormly Co., Heating Contractors.

How Can ROBRAS 20-20 Radiators Be Used To Provide HIDDEN HEAT In a Church?

HEATING a church with ROBRAS 20-20 Radiators in the wall, out of sight, and out of the way, can be accomplished in a number of ways. Illustrated here, however, is one of the most ingenious methods.

ROBRAS 20-20 Radiators were installed in the shallow space back of the wainscot and in the wall under the windows, in each of the window recesses. Air is admitted to the radiators behind the wainscot by inconspicuous floor grilles. The heated air is discharged by decorative grilles high up on the wainscot. By this method, two things are accomplished. High draft heat is obtained and the grilles are inconspicuous.

Additional radiation was provided by enclosing ROBRAS 20-20 Radiators in the end walls. The heated air is discharged by vents such as are visible by the door.



Method of using decorative grille in wainscot to conceal source of heat.

ROBRAS 20-20 Radiators so accelerate the circulation of air that the air directly under the roof and at the floor level, is more nearly the same temperature than is possible with any other type of radiation.

Another advantage of this more rapid circulation, is that the entire church is more quickly heated, once the heat is turned on. It is a flexibility of assembly of these radiators that makes it possible to use them in a place of almost any shape or size. They are adaptable.

Price lists and data sheets are ready to be sent you as soon as we have your name.

ROME BRASS RADIATOR
CORPORATION
ONE EAST FORTY-SECOND STREET • NEW YORK CITY

RETAIL ADVERTISING SERVICE

On these two pages this week you will find two newspaper advertisements, a sales letter, two publicity items and copy for a mailing circular. The cuts used in the newspaper ads and in the circular are 35c each—you use the same cuts for both. If you want to subscribe for the service, you can get material from us for twelve weeks for $4.20—we send you two new cuts every other week.

Modernize the Home for Christmas

—Invest In Comfort

EVERYONE in the family can appreciate gifts that add to the comfort and convenience of the home. Modern plumbing and heating appliances that save useless effort and wasted time. Appliances that mean added leisure, and freedom from drudgery. Electric refrigeration, proper sink accessories, efficient laundry facilities, automatically controlled heat; all are splendid investments for a practical Christmas. Come in and see our display, and your shopping problem will be solved.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 53

CHRISTMAS BUYING REACHES SANITY STAGE

"More and more each year," says Harry Brown, local plumbing and heating contractor, "people are realizing that the sanest solution of the Christmas buying problem is the purchase which is of practical use to the entire family.

"Necessarily, when the family sits in conclave to review this seasonal question the matter of additions to the home and fireside comes in for its share of consideration.

"Thus is approached the subject of home modernization. And when the family, collectively, foresees the economy of time, effort and money to the individual, modernization of the home becomes a fact with a vengeance."

SALES LETTER No. 24

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
November 30, 1929

Mr. Edward Jones,
Two Rivers, N. Y.

Dear Sir:

Have you been pondering fruitlessly on the question of Christmas gifts? Then ponder no longer. We will gladly take the burden from your mind. We settle the problem for you in three words, MODERNIZE THE HOME.

Christmas expenditures can be turned into paying investments in happiness, comfort and convenience. Just stop and think over the number of modern plumbing and heating appliances that would double the efficiency of your home, save time and energy for every member of the family, and avoid the insidious wear and tear on nerves.

If your heating plant is old fashioned and does not distribute an even temperature over the entire house, you are extravagantly throwing money to the winds. The modern system gives uniform heat at all times. It liberates you from slavedom. If you are not familiar with domestic stoker installations or the devices for automatic heat control, we suggest that you call us at once. We will be glad to study your heating problem and advise you, with no obligation whatever on your part.

Very truly yours,
HARRY BROWN

HERE are two newspaper publicity items—clip them and hand them to your local paper. They represent valuable sales help.

Uniform Heat At All Hours

—Why Freeze on Winter Mornings?

IT is easily possible, nowadays, with an up-to-date heating plant, to maintain an even temperature in every room in the house on the coldest days. And now that the Christmas season and spirit are with us, we all feel entitled to our full due of comfort and happiness. That spirit, however, is only too easily shadowed by a cold and drafty home; all because of a feeble, inefficient heating system. Why not insure a merry Christmas by letting us help you to make your home comfortable for the holidays? Telephone us for immediate attention.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 54

THE WISE MEN ARE NOT ALL OF THE EAST

"How often do we hear the complaint," says Harry Brown, local plumbing and heating contractor, "that it's hard to get out of bed on cold winter mornings. Christmas joy or New Year's cheer to the contrary, it takes a brave and resolute soul to jump out of bed into Eskimo weather.

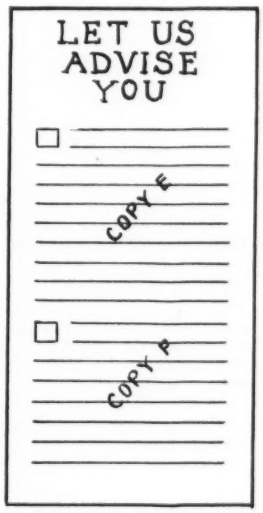
"However, for the wise and foresighted man, it is no longer necessary to go through this trying ordeal in winter time. The wise man has an automatically controlled heating system. The heating plant takes care of itself and furnishes heat when heat is needed. It's like winding and setting the clock to bring forth warmth and comfort at the break of dawn."

Layout and Copy for Circular—No. 7

Below is layout and copy for a four-page circular which can be used as a mailing piece, or which may be used as an envelope stuffer. It ties in with the ads on the other page. Complete instructions are given in the center of the page for handling the printing of such a circular.

PAGE 1

PAGES 2 and 3



PAGE 4

Here is how to handle the printing of a circular like the one shown above

Show this page to your printer. That is all you will have to do. Just above is a "type and rule layout" for the printer to follow. It is, of course, of smaller size than the actual circular, which should be made to fit the average small envelope (which the printer calls a 6¾ inch because that is its length). That means the circular will be three inches wide and six inches high. It will have four pages and will be folded once. The small illustration with this copy shows what it will look like. The words "Copy A," etc., show the printer where each piece of copy is to be placed. The same cuts shown on the opposite page in the newspaper ads will be used in the circular. They cost 35c each.

This is the way the circular will look. Page 4 is, of course, the back cover.

Copy "A" (For First Page)

For Christmas
Modernize the Home

Copy for Pages 2 and 3—Copy "B"

Practical Gifts

Why not make this Christmas a sane one? Instead of spending money for impractical gifts, invest in comfort and convenience. Think of the many modern devices that save useless labor in the home. Consider the economy of efficient equipment in the kitchen, bathroom and laundry. Modernize the home as a Christmas gift for the entire family.

Copy "C"

Even Heat

Constant, uniform heat in every room of the house is healthful. Even temperature means greater comfort. But an unreliable heating plant is an expensive waste of fuel. It makes a slave of the house owner. With controlled heat the burden is lightened, and there is time for leisure, time to enjoy your Christmas to the full.

Copy "D"

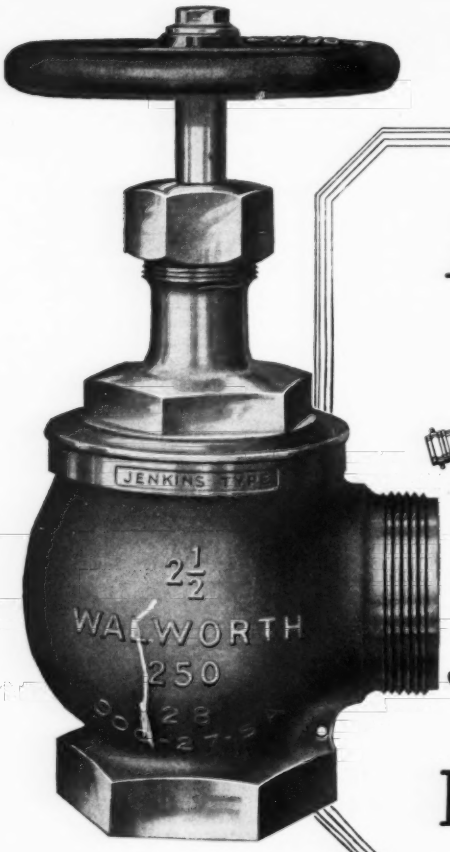
What gift could be more appreciated by the whole family than comfort, leisure and freedom from the bother of nursing a feeble heating system. The modern domestic stoker will solve your troubles if you have a coal burning heating plant. If you use oil or gas, automatic control equipment relieves you of the last care.

Copy "E"

If you are in doubt about your Christmas shopping, we suggest that you allow us to advise you along the line of practical expenditure. Telephone us; we would be glad to study your needs and outline the proper course of improvement for your heating plant—without obligation to you at all. We understand the scientific application of plumbing and heating. We are engineers and specialists. Therefore we are fully able to comprehend your problems.

Copy "F"

Modernized equipment installations represent an investment that cannot be ignored. You are assured of a heating system that will reduce fuel costs to a minimum and increase service to the maximum. Old fashioned heating equipment is a constant and unnecessary expense. Revise your Christmas budget before it is too late.



APPROVED
WALWORTH
Valves
for
FIRE PROTECTION

The Walworth Fire Hose valves are made only in the 2½ inch size. Walworth's complete line of fire line iron body valves, steel valves, and iron and steel fittings are also available.

WITH the increasing height of buildings in all cities the need of adequate fire lines of approved quality is becoming of increasing importance.

Walworth Fire Hose valves have been approved by the Board of Standards and Appeals for use in New York City.

The 150 lb. valve is approved for Class A service for use on floors not exceeding 300 feet in height or on floors above 300 feet in any building.

The 250 lb. valve is for Class B service for use on floors in buildings of any height.

To win the approval of the authorities, these valves passed very severe tests, including shock pressures of from 500 lbs. to 750 lbs. for the 150 lb. valve and shock pressures of from 800 to 1,000 lbs. for the 250 lb. valve. THERE WAS NO DAMAGE TO EITHER VALVE.

WALWORTH

Walworth Company, General Sales Offices: 51 East 42nd Street, New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa., and Attalla, Ala.

Distributors in Principal Cities of the World

Walworth Company Limited, 620 Cathcart Street, Montreal, P. Q.
Walworth International Co., 11 Broadway, New York, Foreign Representative

Questions and Answers

About the Action of Grease in Septic Tanks

Editor, DOMESTIC ENGINEERING:—I would like to get your opinion on the following question:

Is it advantageous to have grease running into a septic tank?

It has always been my opinion and understanding that kitchen sink grease running into a septic tank would destroy the septic action of the tank; but I am now told that I am mistaken and that grease is beneficial to the action of the tank.

Texas. C. A. J.

If enough grease enters a septic tank, it interferes very materially with the action, since septic action has no effect upon most of the chemical elements that enter into the make-up of such greases. When only a small amount of grease enters the tank, there is not enough interference with the action going on there to be noticeable, or to cause complaint. Grease never improves, or is advantageous to, septic action.

In the case of an individual home, where excessive amounts of grease are not emptied down the drain, I do not think that any serious results will occur. In the case of a hotel, restaurant or kitchen where large amounts of grease are dumped into the kitchen sink, the tank will speedily clog.

However, it may be in this particular case that the amount of water discharged through the toilet into the tank is insufficient to allow septic action. This is a not infrequent source of trouble and occurs especially when no other fixtures than the toilet are connected, and when the amount of water entering the tank is less than about 20 or 25 gallons per person per day. In such case, the extra water contributed by the lavatory and kitchen fixtures would be valuable, but every effort should be made to minimize the amount of grease entering the tank.

◆

Concerning the Use of Intercepting Traps

Editor, DOMESTIC ENGINEERING:—I would like to get some information concerning the use of intercepting traps in American cities. I have in mind particularly, the use of intercepting traps in municipalities where grades are particularly flat, and where I regard intercepting traps as an objection.

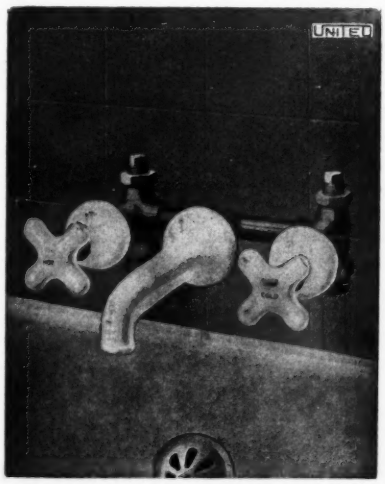
I should be exceedingly obliged if you can give me the names of municipalities in the United States where intercepting traps are not required, and any information that you may have as to the advantages and disadvantages of such traps.

Ontario, Canada. W. R. O.

This brings to the front the old, old question concerning the use of the main trap or the intercepting trap, as it is also called.

We do not hesitate to say that, in the United States at least, use of this trap is fast going out.

If our correspondent can refer to a copy of DOMESTIC ENGINEERING of September 25, 1926, he will find an article of over nine pages in length, devoted to the tabulation and discussion of certain phases of plumbing prac-



No. 150 with Brass Spout
No. 151 with China Spout

for

"ENDURING QUALITY"

Demand

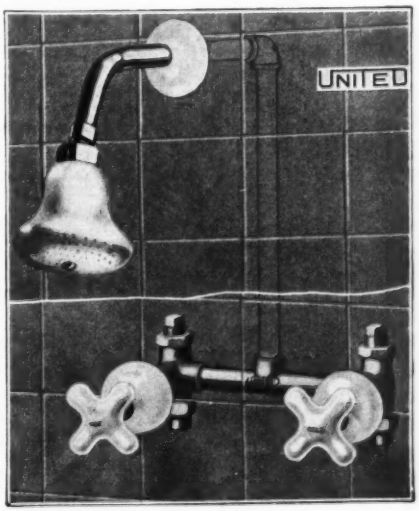
UNITED

"Built in Right"

Bath and Shower Installations

If wanted with All Exposed Brass Parts UN-I-CHROME Specify Style "B." If with All Metal Escutcheons and Handles UN-I-CHROME, Specify Style A.

Colored trims if desired



No. 200 with Brass Head
No. 202 with China Head
No. 240 Less Head and Arm

Get Descriptive Matter and Prices from Your Jobber

UNITED

TRADE MARK REG. IN U. S. PAT. OFFICE

UNITED-OBERNDORF CORP., CLEVELAND, OHIO

Burnham Boilers

The Big Twin himself. Even from the outside you can see that he's built in two halves. It's the same with the grates. You can fire part of the grate surface and bank the rest with ashes in mild weather.

You Can Plow Deep For Business With The Big Twin

THIS biggest Burnham is to the usual boiler what a tractor is to a team of horses.

With it you can turn a wide deep furrow across the heating field, and turn up business you never could touch with the usual cast iron boiler.

And it has all the good traits that make cast iron boilers preferable to steel in many places, practical immunity to chemical action, enduring and dependable.

Glad to give you all the facts of many installations, full ratings, measurements and prices.

Burnham Boiler Corporation

IRVINGTON, N. Y.

Representatives in all principal cities of the United States and Canada

tice, and one of the subjects considered is that of use of the main trap.

A summary of this information shows that of 302 municipal plumbing codes considered in these tabulations, only 208 contained regulations concerning use of the main trap. Of these 208 cities, 106 required its use in 1926, 23 permitted its use, and 63 prohibited the main trap. These results include both cities in the United States and in Canada. Of the 94 cities whose plumbing codes contained no reference to the main trap, we feel very sure that a large majority did not require the main trap to be used.

During the three years or more that have since intervened, we do not question that use of the main trap has still further declined in the United States, and probably to a considerable extent. We base this opinion on the fact that the Hoover code, first published in 1924, has more recently been adopted by a number of our states, is being recommended by the Boards of Health of a few other states, and has been adopted by many municipalities. The Hoover code, we should state, discourages the use of the main trap, and doubtless wherever it has been adopted, the main trap has gone out.

We should state also, for our correspondent's information, that the Hoover code is the result of expert and scientific investigation and experiment conducted over a period of two years by the U. S. Bureau of Standards, and is rapidly becoming standard plumbing practice for this country.

At several points in the Hoover report, the statement is made that in effect, the main trap "produces an effect similar to a partially submerged drain."

Under the heading "Omission of the Main House Trap," page 220, the Hoover report has the following:—

"The committee finds that this trap and the fresh-air inlet are in most cases a needless expense. Experiments under the committee's supervision have shown that the house trap interferes with the flow of sewage and air movements in the house drain. It increases the possibility of trouble from back pressure in the soil stack. Its omission gives opportunity of inoffensively ventilating the street sewers through a multiplicity of outlets. Where the sewage is discharged into a septic tank, a trap and a foot vent on the house side of it is thought by some to be desirable in order to prevent the escape of the tank air and to maintain a circulation of air in the house system, but with the septic tank properly designed it is not necessary.

"The recommendation in the tentative report that installation of the main or house trap and fresh-air inlet be discontinued aroused much discussion. Of the respondents who discussed this matter in particular, the greatest number favor the omission of the house trap, a few would retain it, and a few seem to think that its advantages and disadvantages are about equal. The committee's reasons for advocating its omission have already been given. The chief arguments of those who would retain it are as follows:

"It is argued that fixture traps and floor-drain traps do occasionally siphon in spite of all precautions and that leaks in the pipe system occur because of structural failures and settlements, thermal expansion, and poor workmanship. In such cases the house trap affords an additional barrier against admission of sewer air, insects,

An Important Item On Any Heating Boiler

DAMPER REGULATOR

Proper combustion, uniform heat, carefree operation—all hinge on the automatic control of draft and check dampers.

METAPHRAM DAMPER REGULATORS are as fast as a gauge. The change of any condition that affects boiler pressure or temperature, whether in the firebox or in the system, reacts immediately into gradual, controlled draft regulation.

METAPHRAM DAMPER REGULATORS are made to fit *all* domestic heating boilers—hot water, low pressure steam, vapor or vacuum; and they are a profitable item to the contractor for replacement of less efficient devices.

Detailed descriptive bulletins will be mailed on request.

NATIONAL

National Systems of Heat Regulation and Humidity Control, Metaphram Dampers, Metaphram Motors, Industrial Thermostatic Devices, A-Jacks Steam Damper Regulator for high pressure boilers, Metaphram Damper Regulators for domestic steam, vapor, vacuum and hot water heating boilers, Metaphram Furnace Regulators.

METAPHRAM

NATIONAL REGULATOR CO.
2317 Knox Ave. Chicago, Ill.

NATIONAL REGULATOR CO., 2317 Knox Ave., Chicago

Please send us

☐ Bulletin F-100—Type F Metaphram Damper Regulator for hot water boilers.

☐ Bulletin LP-100—Metaphram Damper Regulators for low pressure boilers.

Name.....

Address.....

Town..... State.....

Vitreous China

Plate 138-F

The Pike Pedestal Lavatory

Here is real value! This pedestal type bowl is of the finest of vitreous china and yet it is sold at a competitive price. Although this price means a bigger margin of profit for you yet it is the product itself which makes the sale. Its gleaming finish will not discolor from soaps or acids and its design and appearance will enhance any bathroom.

Roughs in to a very small space and yet the inside is standard for bowls. Has concealed FRONT overflow.

Write for full details.

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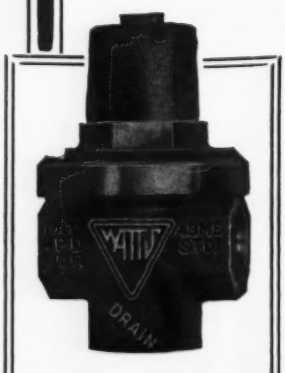
WATTS

DIAPHRAGM RELIEF VALVE

TYPE 28



Self Cleaning Because Seat is Above the Flow of Water

The WATTS Type 28 Valve may be used for dead end service by plugging either horizontal opening.

It is sturdy and dependable. Approved by the National Board of Boiler and Pressure Vessel Inspectors as A. S. M. E. Std. and also by Underwriters' Laboratories.

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WATTS REGULATOR CO.

LAWRENCE :: MASS.

John G. Kelly, Inc., Sales Associates for the United States and Canada: 210 E. 45th St., New York, N. Y.

Johnnie Moore, 1020 Lawrence Ave., Chicago, Ill., Chicago Representative

etc. To this it may be said that conditions within the house system give rise to emanations fully as objectionable as those from the sewer.

"It has been shown conclusively that in very cold climates the increased circulation of air through the house system results in closing roof vents completely with hoar frost, and the use of house traps has been found absolutely necessary.

"It is argued that in cities where house traps are now generally in use, the installation of systems not thus equipped exposes occupants of neighboring buildings to concentrated fumes from sewer systems otherwise unvented. This may, under certain circumstances, justify the requirement of a house trap, but where a reasonable distance intervenes betwen roof vent and neighboring windows the committee thinks that use of the house trap should be optional.

"Careful observations made in England have disclosed that sewer systems are, in general, much more thoroughly ventilated through manhole leakage, etc., than is popularly supposed, and that the presence or omission of house traps has at most a minor influence on the atmospheric conditions in sewers. In this connection it should also be remembered that the fresh air inlet, as an indispensable adjunct to the house trap, may be a very real nuisance to those in its neighborhood.

"It is argued that the main house trap prevents incursions of rats from the main sewer system. Observations both in this country and in England show that rats can pass readily through large house traps, and the usefulness of the traps in this respect, therefore, is questionable. The best protection against rats is the small fixture trap, and since soil pipes are no longer customarily made of lead the danger of rats passing from sewers to the house system is not as important as formerly."

While the Hoover code's position regarding the main trap has been a very great influence against its continued use, in our opinion an investigation into the practice, conducted by the English government a number of years preceding the Hoover investigation, was the prime cause for the rise of opinion against its continued use.

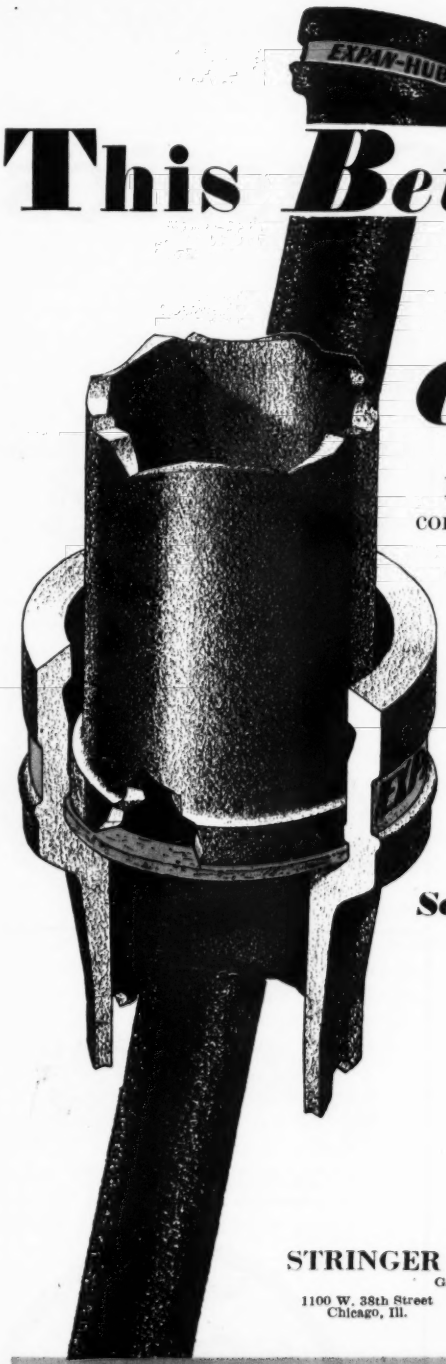
This report was very convincing, and without doubt exerted strong influence on the Hoover conclusions.

Among other things that this report did, was to show that sewer air and drain air are not the deadly foes to human life that they have always been held to be.

By this we do not mean that it would be well to slacken the protection that we seek against entrance of this air into our homes, but we do mean that if the English report is true, we do not need to stand in abject fear of sewer air. Conclusions of this nature have helped to overthrow the supremacy of the main trap.

Our correspondent mentions use of the main trap where house drains are very flat. It does not seem to us that this point enters into the subject of the use of this trap especially.

Some of the leading cities of the United States, which prohibit use of the main trap are:—Pasadena, Sacramento, San Diego, Calif.; Jacksonville, Miami, St. Petersburg, Fla.; Des Moines, Ia.; Louisville, Ky.; Baltimore, Md.; Battle Creek, Grand Rapids, Mich.; St. Paul, Minn.; Omaha, Nebr.; Camden, N. J.; Portland, Ore.; Providence, R. I.; Salt Lake City, Utah, and Tacoma, Wash.



This Better Soil Pipe actually helps Get Contracts

Imagine a soil pipe that can actually help you get contracts: Yet that's just what hundreds of plumbing contractors tell us EXPAN-HUB is doing for them.

Owners, architects and engineers have long been seeking a solution of the expansion and building settlement troubles in soil, waste and vent lines. *Now comes EXPAN-HUB to forever end these difficulties.*

For the specially designed gasket in each hub **absorbs all movements due to expansion and building settlement**—prevents the stack from buckling and keeps the joints gas-tight forever.

Solves Expansion—Settlement Problems —Made Better Throughout

This one feature alone is the greatest improvement ever made in soil pipe. *Yet the entire pipe is made better throughout.* Extra thickness at the hub, and tapering down into the pipe proper, adds strength and makes it possible to caulk the joints without any fear of splitting hubs.

Mention EXPAN-HUB by name in your next bid. See how much it helps you. ***Your wholesaler carries it, or can get it quickly.***

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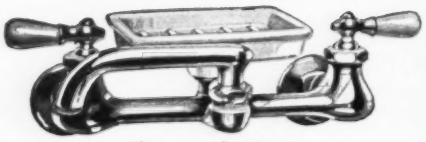
The New 8 Classics

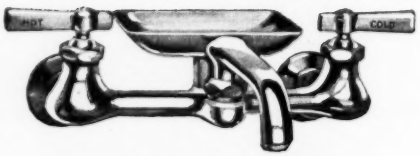


No. 542 "Straight-8 Streamline" Classic Sink Faucet with china handles and soap dish.

No. 543 "Straight-8 Streamline" Classic Sink Faucet with china handles and soap dish, hose and spray.

The New "Straight-8 Streamline" Classics

Lowest, neatest, most compact line ever made. Only 3¼-in. high. Adjustable, 7¼ to 8¾-in. Ideal for low-back sinks — equally adaptable to old-style sinks, too.



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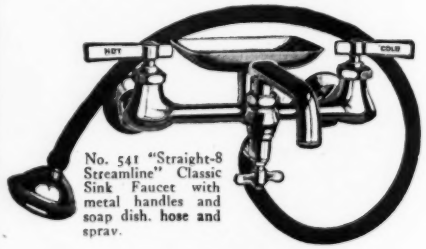
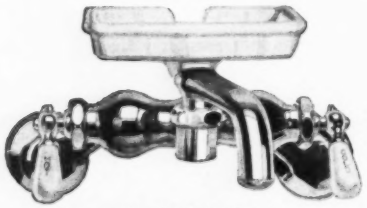
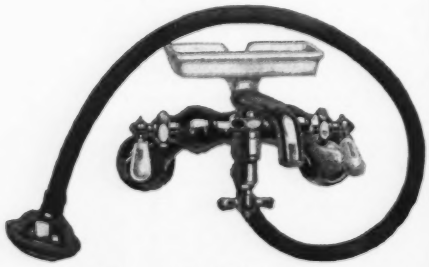


No. 541 "Straight-8 Streamline" Classic Sink Faucet with metal handles and soap dish, hose and spray.



No. 537 Classic Sink Faucet with overhead spout, china side handles and soap dish.



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The New Side Handle Overhead Spout Classics

Attractive companion line to the "Straight-8's." Only 4½-in. high. Adjustable 4 to 8-3/8-in. Also furnished for 10 and 12-in. centers. Recommended for new or old sinks.

Write for new Classic folder showing 32 styles and types of Classics

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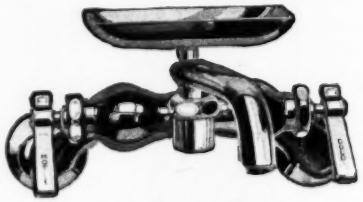
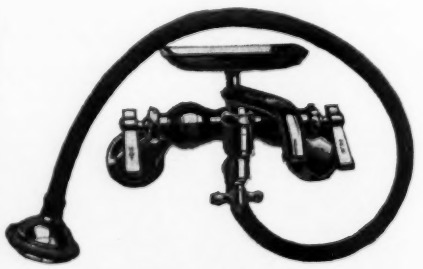


No. 535 Classic Sink Faucet with overhead spout, metal side handles and soap dish.



No. 536 Classic Sink Faucet with overhead spout, metal side handles and soap dish, hose and spray.

CHICAGO FAUCETS

Water Softening

(Continued from Page 51)

things being equal, the water which weighed the least in any given volume, which is the softest, was the most desirable. He suggested that the best way to purify an unwholesome water was to boil it down half. This, as the housewife knows, removes hardness and destroys any possible injurious bacteria which might be present. Pliny is the supposed authority for the statements that the most refined parts of a water are expelled by freezing and that all bodies of water purify themselves at the time of the full moon. It is claimed that the Romans measured the hardness of waters colorimetrically.

Some of these ideas appear somewhat quaint to us, nevertheless, they show us that the hardness of water was recognized many centuries ago and that one method for removing it by boiling was known and practiced at that early date. Water is now softened in many instances by distillation. This method gives a clean sterile water free from hardness. The method is not universally employed because of the large expense involved in evaporating large quantities of water.

Temporary Hardness May Be Removed by Boiling

In 1841, Dr. Clark of England discovered that temporary hardness could be largely removed from water by addition of lime. It will be recalled that temporary hardness is the hardness removed by boiling water. The lime reduces the temporary hardness due to calcium to the solubility of calcium carbonate, which is quite low. Most of the hardness settles from the water in the form of white flakes, which is calcium carbonate, perhaps better known as limestone.

The temporary hardness due to magnesium is also removed with lime. Chemically, there is a difference between this reaction and that for the removal of the calcium. The net result is, however, the same.

The advantage of the lime process (Clark) is that the softening reagent is deposited with the temporary hardness. There is no new material remaining in solution. The total mineral content of the water is reduced to the same extent as the hardness. Such is not the case with the permanent hardness, that is, hardness which cannot be removed by boiling.

Permanent Hardness

The permanent hardness is caused by the presence of the sulphates and chlorides of calcium and magnesium. These constituents are removed with soda ash. The corresponding sodium salts remain in solution. The mineral content of the water is slightly increased but the hardness is reduced. This method was discovered by Porter, and is widely used in connection with Clark's lime process. The combined process is termed the lime-soda process.

In commercial plants, the amounts of lime and soda ash required can be calculated from an analysis of the water. The chemicals are added and agitated for the desired length of time. The water then passes through sedimentation basins, where the precipitated hardness settles out. The period of sedimentation

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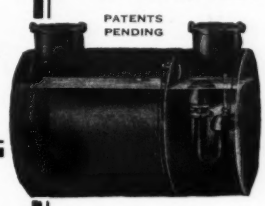

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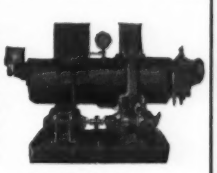

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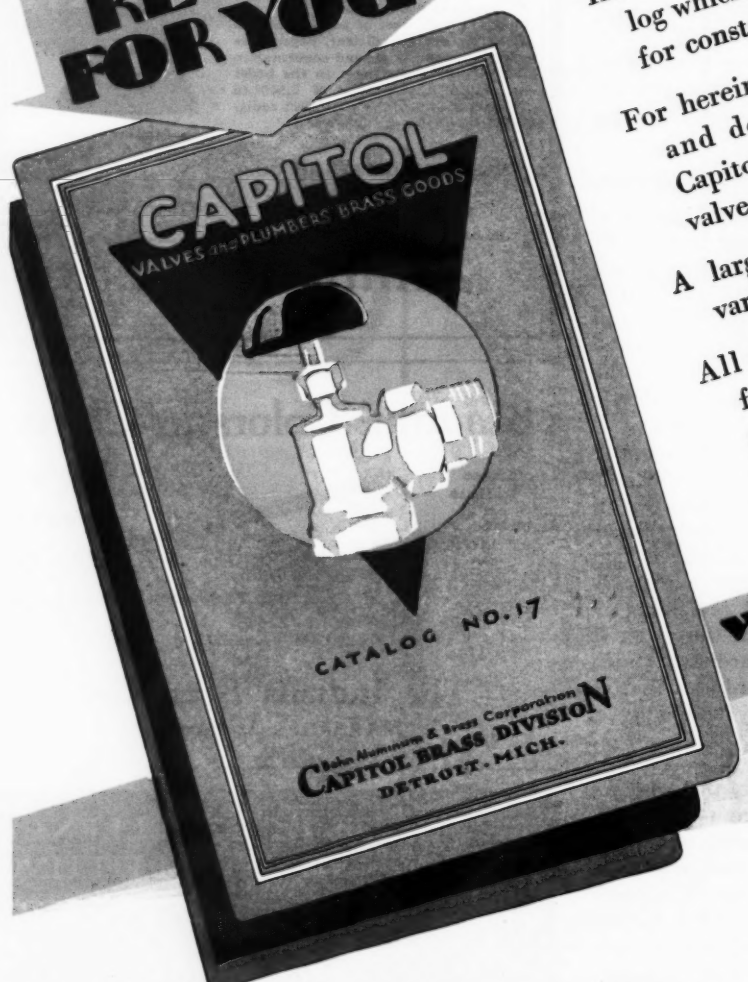

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varies at different plants according to the composition of the water and other factors.

The lime-soda process is used by municipalities, railroads, power plants and in other cases where relatively large quantities of water are desired. Unfortunately, the application of the lime-soda process in practice is not as simple as the foregoing outline would indicate. The operator must be experienced. The plant requires careful control. It is not a process for the average individual, who is not technically trained. The method requires exact and expert control which is too expensive for softening small quantities of water. It is impossible to secure a water of zero hardness by this method due to the solubility of the materials used and formed in the softening process.

Water Softening by Use of Base Exchanging Substances

The latest method of softening water is by the use of zeolites or base-exchanging substances. The idea is not new. The base-exchanging property of zeolites was discovered by J. Thomas Way in 1850, while he was doing research work on fertilizers.

The inspiration for this work came from his two agricultural friends, Mr. Huxtable and Mr. Thomson. Mr. Huxtable stated that he made an experiment in the filtration of liquid manure in his tanks through a bed of loamy soils and after the experiment the urine was deprived of its color and smell. In fact, it went in manure and came out water. Mr. Thomson mentioned that he had found that soils have the faculty of separating ammonia from a solution of ammonia water.

Zeolite water softening as it is known today is a comparatively recent development. It did not receive any special attention until the middle of the first decade of the twentieth century. There is some discussion between Rumpler and Gans, two German chemists, as to who should receive credit for suggesting the use of zeolites for water softening. Irrespective of this argument, it is only of importance to note that the materials which were made at that time are obsolete today. Their ideas served only to stimulate work along the proper channels.

Several attempts were made in Germany to employ zeolites to remove iron and manganese from water. It is probably well to mention the attempt of early investigators to utilize zeolites to remove calcium from beet sugar molasses. Zeolite water softening as it is known today started from these early attempts and has made rapid progress in recent years. Soft water was once considered a luxury by many people. Today the same people consider it a necessity in the home, hotel, college, beauty parlor, laundry, cannery, power plant, dye house and railroad water stations.

Characteristics of Zeolites

The various zeolites on the market today differ widely in their appearance. There is a great variation in the claims put forward for their properties. It is practically impossible to develop a classification of zeolites which correspond to their actual prop-

STEAM HEATING
"improved beyond conception"

IN-AIRID valves have had a startling success from the first day that they were introduced. And all the heating contractors who have standardized on them are as enthusiastic as Mr. Bredeman. He says: "I don't hesitate to use these valves on all of my one-pipe steam work, as they improve this type of heating plant beyond conception."

WM. J. BREDEMAN
VAPOR, STEAM AND WATER HEATING
LOUISVILLE, KY.

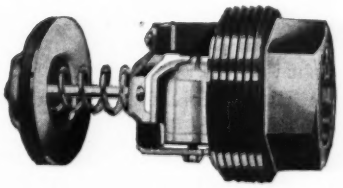
American Radiator Company,

Gentlemen: I would like you to know that your Ideal In-Airid Vacuum Valves are highly satisfactory. They not only improve the appearance of the radiator, but they are efficient in performance. These valves on the radiator together with the #822 Vac Vent Valve on the end of the main have enabled us to hold a vacuum for even longer than twenty four hours.

Not only the appearance and performance of this valve appeals to me, but I also like the fool-proof feature which prevents inexperienced owners damaging it with hat pins, tooth picks etc. I do not hesitate to use these valves on all of my one pipe steam work as they improve this type of heating plant beyond conception.

Yours very truly,

Wm J Bredeman



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The Invisible AIR VALVE
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Airids No. 500 and Vac-Airids No. 510 are still the best valves to use for replacement on old style steam radiation.

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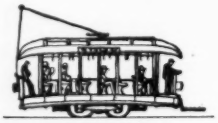
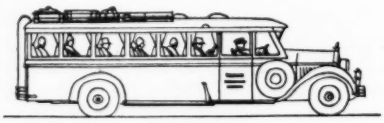
1860



1900



TODAY

1860

1900

TODAY . . . the T/N

The T/N *is a wonderful improvement . . . QUIET . . . NON-OVERFLOWING . . . built all in one piece*

IF folks in your town had to go around in horse cars, they would soon hold a town meeting to throw them out. Nowadays people won't put up with out-of-date equipment. They want all the new improvements . . . the latest styles.

And the plumbing contractor who realizes this is the one who makes the profits. That's why the T/N is so popular—that's why you'll find it from one end of the country to the other.

The T/N is the biggest improvement in the plumbing industry since bathtubs were zinc-lined. It's made in one piece . . . there's no wall tank. A wonderful saver of space in small bathrooms or washrooms . . . you can install it in a corner or under a window.

QUIET, too . . . and that means plenty in this day of small homes. Non-overflowing. Positive in flushing action. Completely sanitary. These are features that say "*buy me*" to your customers.

Install a T/N on your next job . . . it's a cinch! Only two connections. A mighty flexible roughing minimum of only 12 inches. Carries a good profit for you, too. Get started now . . . write us for the name of your nearest jobber.

ONE PIECE WATER CLOSET SILENT NON-OVERFLOW
Patented. Pat. Pend.

W. A. CASE & SON MFG. COMPANY
Established 1853
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T/N

ONE PIECE WATER CLOSET

erties. Many attempts have been made to classify them. If they are classified in a mineralogical sense, one has zeolites and non-zeolites, both possessing base exchanging properties and capable of softening water. Such a classification is obviously a poor one. Some writers have attempted to classify zeolites into slow and rapid acting zeolites. This classification is more misleading than the first. Such a classification does not take into consideration the fineness of the zeolite which is the predominating factor in considering the reaction rate of any particular zeolite.

The characteristics of the zeolite method of softening water are as follows:

(a) Complete removal of hardness forming constituents in the water.

(b) Lack of precipitate of limestone in the water after it has been softened.

(c) Fluctuations in the hardness of the water do not require adjustment of chemical dosage.

(d) Lack of slimes or sludges to handle.

(e) These softeners can be in operation under municipal pressure.

Stokers for Domestic Use

(Continued from Page 48)

bution. Cases where the stoker dealer contacts the owner builder are rare in present day building economics. In the northeast most of the new, moderately priced house construction is done by speculative builders of not too assured financial standing. The profitable sale of a household commodity such as a stoker, for new house construction, is usually best handled by negotiation with the purchaser either before or after the house is occupied. By far the majority of stoker sales opportunities arise in connection with occupied property in which existing grate-burning equipment is to be converted and where a survey of the entire system is essential to assure satisfaction.

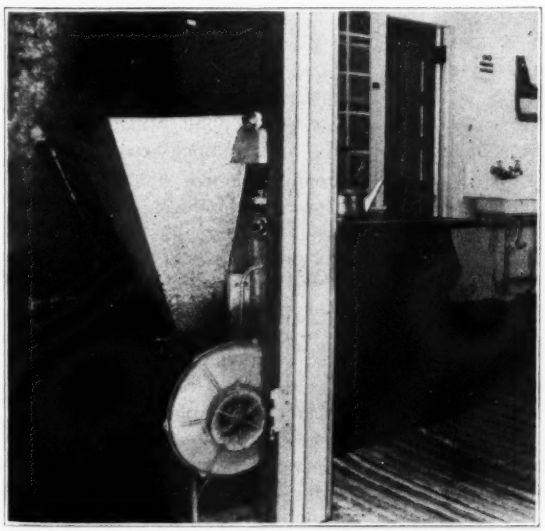

Fig. 8.—Stoker in range. Coal hopper in cellarway avoids necessity of bringing coal into kitchen. Rate of coal feed is regulated by hand control on the wall beside the range

To be practically and profitably handled a stoker must

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Every Heating Man now knows that Motor Driven Forced Circulation is essential in Modern Hot Water Heating.

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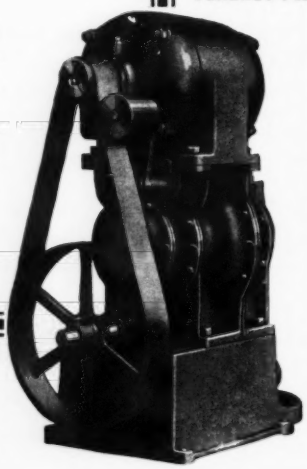
ALAMO DORWARD

Rotary Power Heads

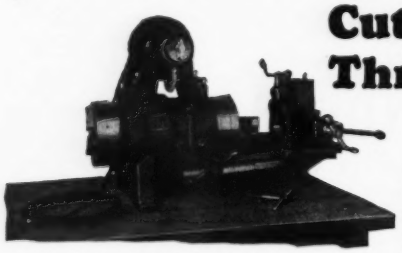
Cost Less

Patented 9-4-23

Because Alamo Dorward has reduced noise and wear to the very minimum and because it has made the Alamo Dorward Rotary Power Head of the best materials available, the cost is less in the long run.



Alamo Engine Co.
Hillsdale : Michigan



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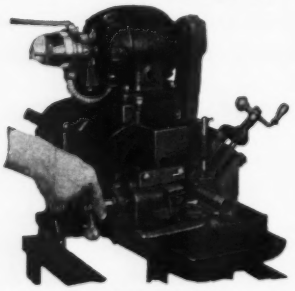

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Chicago Pipethread Machine Co., Racine, Wisconsin
Offices and Factory: 1621 Racine Street

be designed for installation in standard forms of heaters with a minimum of noise, confusion and mess and with little interruption of the house heating. Much of this equipment is performance guaranteed and sold on time payments, hence a further condition is that the stoker installation should involve the least possible amount of cutting either of the heater or the cellar floor.

A stoker to be adequate must remove the ashes and must allow access to the heater fire door. It should be adapted to placement in front of the heater. The reason for this is twofold. In the first place the removal of the front-plate of the ashpit is usually comparatively easy, and, if for any reason the stoker has to be taken out, will involve little replacement cost. Secondly, space for the mechanism and coal hopper is normally available in front of the heater, but there is often no room on either side and very seldom any room in the back.

Ash delivery should be above the cellar floor level for several reasons. Cost of installation is minimized; a pit may encounter water, rock or submerged pipes, and it always costs money, takes time, makes mess, noise and confusion, and, if the house is occupied, invariably irritates the occupants. Keeping the cellar floor clean after installation is easy where there is no pitting. Lifting an ash can from a pit is much less attractive than sliding a can on a smooth floor. In case the stoker has to be removed the work is quickly done and the floor left unscarred. A tenant user can readily move the stoker when the ash can position is above the floor level; a present user in Westchester County, N. Y., has his stoker in the fourth rented house he has occupied.

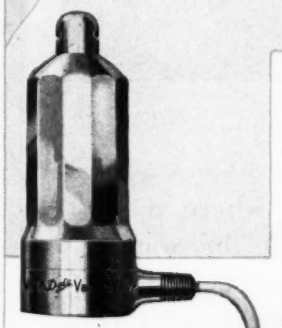
As long as the household stoker business is primarily in house heating there will be a strong tendency to localization of business activity to a period from the middle of August to the end of January. Fortunately this condition is becoming less pronounced due to the continually increasing use of stokers in small high-pressure steam boilers, baking ovens, service hot water heating in commercial buildings, installation in ranges, pot boilers, etc. These are year round utilizations with a tendency toward spring and summer activity.

Boilers supplying steam either for small engines operated without condensers or for process steam should be figured for five pounds of coal per hour per boiler horsepower. Where steam is used in driers, vulcanizing molds, steam pressing, etc., with steam traps and condensate returns to the boiler, about 3 pounds of coal per boiler horsepower can be figured.

It has developed that many householders are willing to pay a reasonable amount for the complete freedom from all attention to their heating plants. To them it is possible to sell the stoker with automatic control, which burns the small, stoker size anthracite, normally costing about half as much as the large sizes used in hand firing.

A complete service includes the following: Coal storage hoppers maintained full, the ashes removed from the cellar, the mechanism oiled and kept in repair; in the spring, heater and cellar are vacuum cleaned and the entire heating plant put in perfect condition. As this provides absolutely automatic operation as far as the customer is concerned with a minimum investment and at a low cost for fuel the contractor dealer secures a very gratifying response, a considerably increased and more profitable business and a well satisfied clientele.

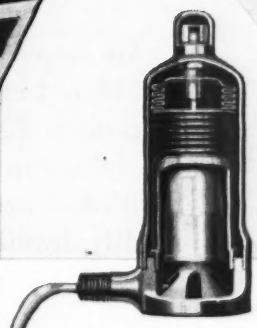
ATTRACTIVELY PACKAGED for Quick Sale



New design. Beautifully finished in lustrous, non-tarnishable chromium plating. Rich—different—distinctive. Written guarantee for five years.
(Patents applied for)

The "Better Business" Box

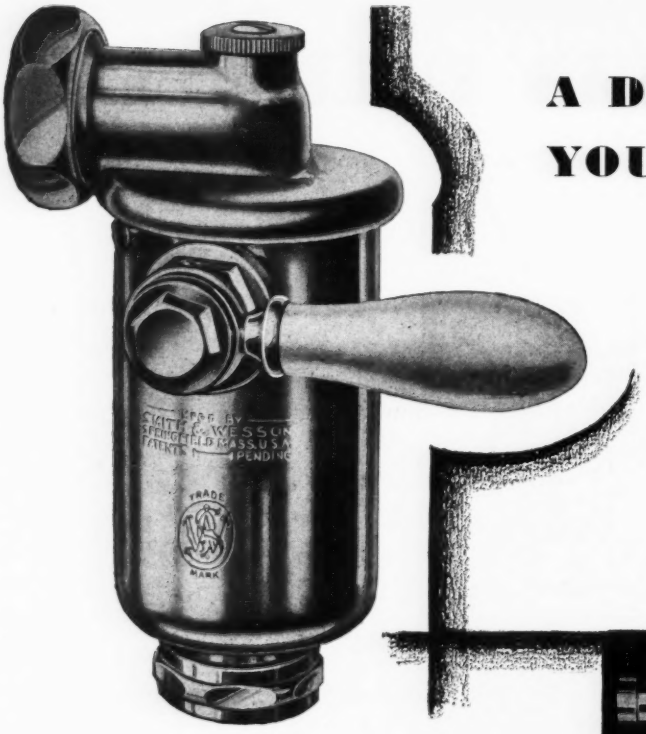
AIR VALVE business will be better with you if you display this new, attractive, 3-color display box in your shop. It holds 12 of the new Dole Vacuum Valves No. 2-B, each conspicuously cartoned individually. You don't sell one at a time—but several, one for each radiator and 6-B's for the mains. Yes, business *will* be good if you push this profitable specialty. Write for complete information.



Triple-action construction insures a positive performance. "Holds the vacuum." 100 per cent automatic. In actual test has shown remarkable results.
(Patents applied for)

THE DOLE VALVE COMPANY

1913-33 CARROLL AVENUE :: CHICAGO, ILLINOIS



A DRAINING FEATURE YOU'LL APPRECIATE IN THIS NEW FLUSH VALVE

by

Smith & Wesson

An important point to be considered in flush valve satisfaction, is the ease with which the valve can be drained. The Smith & Wesson Flush Valve is readily drained by turning the stop cock at the valve and holding the valve handle open a few seconds.

This feature, simple though it may be, will be appreciated by owners of summer homes and hotels in the North, where it is necessary to draw off the water during the winter months.

This "Drainability" shows the thoroughness with which Smith & Wesson have studied flush valve requirements.

For Further Information Write

SMITH & WESSON

FLUSH VALVE DIVISION

SPRINGFIELD, MASSACHUSETTS

LEGAL QUESTIONNAIRE

Answered by "The Judge"

Best Method to Use in Getting Payment for Repair Work

Editor, DOMESTIC ENGINEERING:—Please advise me on the best method to use in getting my money on repair work.

Must the master plumber have a job ticket signed by the owner in order to get him to pay by a law suit?

What must a master plumber have in order to prove that he has done a repair at the owner's home in order to make him pay by law?

If it is necessary for the plumber to collect personally can he charge for his trip to do so?

And I wish to know what is the best method to use in handling the customer who wants to get the plumber to do repair work by an agreement that he will replace a certain fixture for an agreed amount.

California. T. F.

Answer:—Some laws and some business methods are better than others, but neither law nor business methods of the best kind will guarantee to a master plumber that he will get his pay for his work.

For instance, if a tenant, who does not own the real estate, orders you to do some repair work, and the tenant has no money with which to pay you, and the landlord did not sanction or consent to have the work done, I know of no way in which you can secure payment from the tenant.

If you do the work for the owner of the building, either by direct contract with him or with some one acting for him, you can work your rights out under your mechanic's lien statute, provided that you have filed the proper notice of your contract, etc. In the case of small repair jobs, this is not a very satisfactory method of securing payment, because of the amount involved and the expense of litigation.

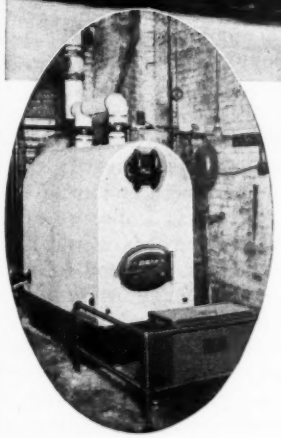
It is possible, in some case, to secure the written guaranty of payment by some third party in the event that you do not trust the person with whom you have contracted.

You might also require a deposit before beginning work, and payments as the work proceeds.

In those cases in which you enter into a contract with the owner of the real estate, you will have a right to make an attachment in any suit which you may have to bring, and you will ultimately get your money if some mortgagee does not step in and foreclose his mortgage on the property, or if some other contractor has not made a prior attachment. To be sure of your money in such case it would be necessary for you to look up the title to the real estate

* Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

SELECTED for a Variety of Buildings



The Johnston Oil-Burner Boiler

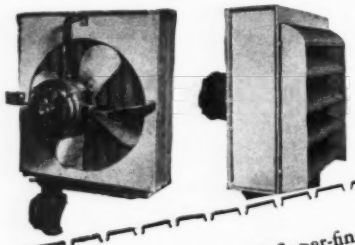
The range of sizes in which the Johnston Oil-Burner Boiler is made makes it adaptable to a wide variety of commercial buildings such as Stores, Offices, Theatres and Garages. The owners of these buildings realize the advantages of automatic heat and now the Johnston Boiler makes possible automatic heating plants that operate at a fuel cost no greater than coal.

What is more the heavy material used and the unusual features of re-enforcement make the Johnston Boiler the strongest oil-burner boiler made for commercial service.

By selling the Johnston Boiler with your burner you can increase your commercial building installations. Tell us to send our catalogue and dealer proposition.

Johnston Bros., Inc. - Ferrysburg, Mich.

KROY
Unit Heater

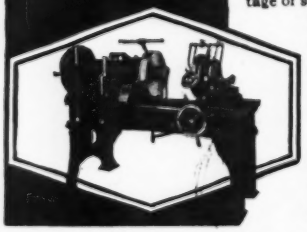


KROY UNITS, built around Super-fin coils, give highest B. T. U. capacity at lowest B. T. U. cost. There are no joints to leak . . . the metal is solidly fused. Recommended for any steam pressure up to 200 lbs. Wherever overhead units are required, Kroy Units give most for the money. Ratings, specifications and prices on request. Branch Offices in principal cities.

York Heating & Ventilating Corp'n
Largest Producers of Unit Heaters
1573 Sansom Street Philadelphia

Specify
JARECKI
Pipe threading
Machines

A Pipe Threading Machine, like a chain, is as strong as its weakest part . . . Jarecki Pipe Threading Machines have the advantage of sound design *throughout*. (Nearly fifty years' pipe-machine experience is behind them). Dies are made of fully tested Jarecki die steel, scientifically ground and tempered. All Jarecki Machines are tested, before shipment, on every size of pipe within their range.



On the whole, it is easy to understand why many of the largest users of pipe threading machines consistently specify Jareckis. Full information on request.

[Established 1852]
Jarecki
Jarecki Manufacturing Company
Erie, Penna., U. S. A.

to learn about possible mortgages before doing the work. Also, if you anticipate trouble, it would be well to file your lien notice and work your rights out in that way.

There is no very satisfactory method of being sure of payment for repair work, by legal means, in the event that your customer will not pay you, principally because of the amount usually involved.

The question of the extension of credit is one of the big questions in the business world. To be reasonably sure of getting your money, you will have to be careful to do work only for responsible parties. You must very definitely understand, when you give a person credit, that there is a chance that you will not be paid. If you take the chance, understand that it is a chance which you are taking and decide whether you wish to take it. It is useless for a business man of today to sell promiscuously, and then hope to find some law or happy chance which will help him out of his difficulty. And yet, competition is such today that many business men bend all their efforts to making sales and trust to luck for their pay.

In any case in which you have a doubt whether you will get your money for repair work, the best method is not to do the work without some guaranty of payment or deposit. In the case in which you have reason to believe that you will get your money, but do not for one reason or another, you will have to rely upon litigation in the courts in your endeavor to collect.

A person who extends credit to another, should do his thinking before he does the work, and not after he finds that he cannot get his money.

The signing of a job ticket by a customer will make it easier for you if you have to go to court, but is not necessary, as a matter of law. Anything that you do which will make it easier for you to prove your case, is for your advantage. If you have your customer's signature, it will be harder for him to prove to the court that he didn't order the work which you have performed. Anything which you have in writing, signed by the customer, will make it just so much easier for you to prove your case.

To prove that you have done repair work at an owner's home, you would have to have the testimony of some person or persons who personally know the facts. You might personally take your customer's order, but if you had not seen the work which had been done, you could not personally testify as to what was done. Either your foreman or journeyman would have to testify, if there was a dispute about what you did. Your books and records would be of assistance, but standing alone would not be sufficient if the facts were disputed by the other side. I can only give you these general rules, as one case will differ from another, and bookcases full of textbooks on evidence have been written about this subject. The best advice I can give you is to suggest that you write a letter to your customer, stating just what you intend to do for him, giving the price if you can, and have him accept your proposal in writing.

You cannot charge for your time or expenses in

Two of the largest plants in the world grew from a small beginning because of the worth of the product. That they continue to grow is an absolute indication that their product is giving continued satisfaction.

FORDS PORCELAIN WORKS

PERTH AMBOY, NEW JERSEY

MANUFACTURERS OF SANITARY WARE

Sturtevant built...and priced for business!

Those are the two big things that count . . .

...good reputation behind the product and a price that means business. Contractors take notice!

The SPEED HEATER makes bidding easy, selling it is no job at all; in capacity, in silent operation, in appearance, in new features, *it has no equal!* We'd like to prove it!

In addition we help you sell it! Sturtevant Sales Cooperators are located in principal cities...a live bunch of men ...on their toes to help you...Why not let one of them tell you all about this kind of business...where it is...how to get it? If you are already handling indirect heaters, these men will show you how to make a much longer profit!

Use the coupon and let's get busy! It will take you seven minutes to read *"Tips on Heater Selling"*—and a long time to forget it!

THE PRICE IS 'WAY DOWN

COUPON

B. F. STURTEVANT CO.
Hyde Park, Boston, Mass.

Kindly mail me SPEED HEATER particulars, also copy of "Tips on Heater Selling."

☐ I'd like to see a Sales Cooperator when he's in the district.

Name of Company.....

Street Address.....

City.....*State*.....

B. F. STURTEVANT COMPANY

Plants and Offices at: Berkeley, Cal. ◥ Camden, N. J. ◥ Framingham, Mass Galt, Ontario ◥ Hyde Park, Mass. ◥ Sturtevant, Wis.

Branch Offices at: Atlanta; Birmingham; Boston; Buffalo; Camden; Charlotte; Chicago; Cincinnati; Cleveland; Dallas; Denver; Detroit; Hartford; Indianapolis; Kansas City; Los Angeles; Milwaukee; Minneapolis; Newark; New York; Omaha; Pittsburgh; Portland; Rochester; St. Louis; San Francisco; Seattle; Washington, D.C. ◥ *Canadian Offices at:* Toronto; Montreal and Galt. ◥ *Canadian Representatives:* Kipp Kelly, Ltd., Winnipeg

Also Agents in Principal Foreign Countries

Sturtevant
(REG. U. S. PAT. OFF.)

SPEED HEATERS
"More Heat Less Steam"

making collections, unless you have specifically made an agreement to that effect.

What I have said about extending credit for repair work will apply generally to your last question about the best method to use in handling a customer who wants a certain fixture replaced. In addition, I would suggest that as far as the fixture itself goes, you might enter into a form of contract similar to a conditional sale contract, although your statutes do not specifically provide for conditional sales. However, it would be possible for you to have a contract drawn which definitely reserved title in you until the fixture has been paid for. The difficulty about all such contracts is that it is not certain whether the contract would cover piping, etc., which would require a partial destruction of the real estate if removed.

Also, under your law regarding consignments, it would be possible to draw an agreement which would reserve title in you until the fixture has been paid for, although your statute touching upon consignments does not cover such an agreement specifically. In all such cases, involving but one or two fixtures, the expense involved, if you draw an agreement to cover each case, makes such an agreement useless because of the small amount of money involved. In the last analysis your credit policies will determine the extent of your losses.

Plumbing Code Tabulations

(Continued from Page 74)

prejudice. Many codes have been established by copying other codes. Prejudice in favor of this or that method of construction has brought about unnecessary differences."

All of the foregoing is true, and indeed much more could be written along the same general line.

Purpose of Tabulation to Extract Information

However, the chief purpose of our tabulations concerning plumbing practice, will not be so much to show differences in practice for the sake of emphasizing points of difference, as to extract from the plumbing codes the actual information they contain. At the same time, of course, our studies will also bring to our attention, the great differences that exist,—the "unnecessary differences," as the Hoover report states it.

Licensing of Plumbers

In the previous article we quoted at considerable length from the Hoover report, and in the quoted matter allusion was made to the use of "certificates of competency" in the following words,—"it might be better for the examining authorities to issue certificates of competency rather than licenses."

Elsewhere in the Hoover report this subject is expanded under the heading,—"Licenses versus Certificates of Competency," which we give as follows:—

"The license is a crude governmental device for assuring the public that plumbing work will be done satisfactorily, and in accordance with legal regulations. It was originally intended to guarantee crafts-

IMICO UNIONS

NOTE THE BRASS DISC

Made of Refined Malleable Iron with Brass Seat Inserted in Place by Powerful Pressure So That It Cannot Become Detached.

Approved by Underwriters' Laboratories.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.
Manufacturers Full Line Iron Pipe Fittings

MYERS Self-Oiling Power Pumps
For General Service

Safety and low cost of operation, uniform service without attention, increased capacity over comparative sizes of old type pumps, have popularized Myers Self-Oiling Power Pumps in domestic, agricultural, commercial and industrial fields to such an extent that we now build them in Twelve Sizes to meet installation, motive and volume requirements. If interested in power pumps for home, farm, mill, mine or factory, investigate MYERS Self-Oiling Pumps.
Catalog and Information on request.

The F. E. Myers & Bro. Co., Ashland, Ohio
Manufacturers of
Myers "Honor-Pumps", Hay Tools, and Door Hangers

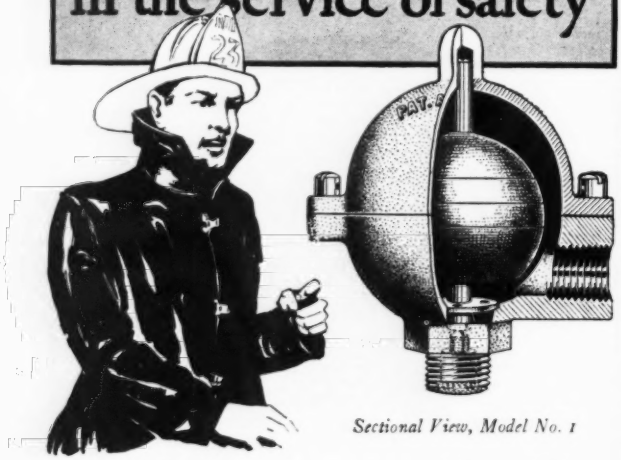
Now! In Color

COLOR IN THE LAUNDRY

Alberene Soapstone Laundry Trays

Alberene Stone Co., 153 W. 23rd St., New York City

Shoulder to shoulder in the service of safety



Sectional View, Model No. 1

Red Helmets...and Red Tops

Where lives and property are endangered by fire, the red helmet of the "chief" stands out in the thickest of the fray . . . a symbol of a stalwart warrior in the army of safety.

The red top of a Red Top Relief Valve is another such symbol. It identifies a relief valve which protects "closed" domestic hot water supply systems. Prevents explosions and other internal ruptures. Guards against damage done by rising pressures when a heater is accidentally left turned on.

A Red Top Model No. 1 may be set to relieve at 50, 75, 100 and 130 lbs. It works automatically, pressure in the system opening the valve, and gravity closing it after proper relief has been given.

Both this valve and Red Top No. 2 for hot water heating systems are approved by the Underwriters' Laboratories, Inc.

Let us give you further information.

Use the coupon below.

NEPTUNE METER COMPANY
50 E. 42nd Street New York City, N. Y.
Branch Offices in Principal Cities

Red Top Relief Valve

NEPTUNE METER CO. D.E. 11-30-29
50 East 42nd Street, New York, N. Y.

Please send me a copy of the new edition of your folder, "Protection," which describes Red Top Relief Valves and their operation.

Name .....
Street .....
City .....
State .....

manship and knowledge of the regulations. It can do no more, and it does not always do that. It does not always stimulate a plumber to improve his knowledge after his license has been secured. It was not intended, and indeed, can not assure business competency or reliability, and today the business side of plumbing is important. The distinction between journeymen's license and master plumbers' license is vague, and differs in quantity rather than in kind.

"Furthermore, the license, which debars the competent nonlicensed man from doing plumbing work, is not for the interest of the country, for desirable individual competition is prevented.

"The committee is of the opinion that the time has come for a thorough study of the license system, with the idea of possibly substituting for it a system of certificates of competency—a system that would tend to improve the status of the plumber, by causing him to be stimulated by competition both in business and craftsmanship, and that would give greater protection to the public against faulty plumbing. Under a system of certificates of competency, the owner would desire to choose a certified plumber, whereas under the license system he would be compelled to choose a licensed plumber.

"What is needed is some plan to give the public confidence in the persons who are engaged in the plumbing business. If plumbers will actively take up the problem of raising their own status on the basis of competency, a great deal can be done in establishing confidence of the public in the industry."

The foregoing is interesting to ponder over. Whether the suggestion will ever bear any kind of fruit, we, of course, cannot tell. As far as our own personal opinion goes, we would hesitate to set up two classes of plumbing concerns, or in other words, to create what might be known as an "aristocracy," in the plumbing trade.

(To be Continued)

Standard Symbols for Heating Drawings

(Continued from Page 64)

obtained from drafting rooms throughout the country and the symbols as adopted are those which, in most cases, were already in use in some offices.

It is to be hoped that everyone will adopt the standard as soon as possible. Standardization cannot be accomplished over night or by the mere publishing of a code. It requires the co-operation of all persons and organizations who are interested. Standardization, by its very nature, calls for compromise and for more or less inconvenience on somebody's part. In the present broad standardization movement that is going on throughout the country, manufacturers have been called upon to scrap patterns, dies and machinery costing uncounted thousands of dollars and most of them have done so cheerfully, fully realizing that the ultimate benefits are enormous. Standardization of drafting room symbols is a step in the same direction and is deserving of equally strong support.

AFTER YOU MAKE YOUR PROFIT *can you keep it ?*

DON'T waste your time trying to merchandise *any* product that requires so much service replacement after being sold, that your original profit is eaten up.

After you make your profit can you keep it? If you can answer, "Yes!" the product in question is a good one on which to standardize.

Realizing how directly this points to quality, we determined in bringing out a new, sheet-covered toilet seat, to make it so strong that we could give it a lifetime guarantee.

The new Brunswick is such a seat, with pyralin 9 times thicker at the critical edges, and 800 percent stronger.

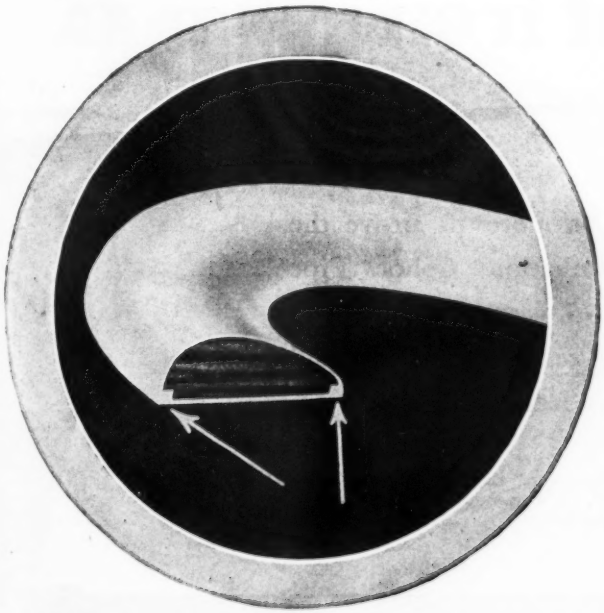
This patented feature which cushions and reinforces the edges, and which positively eliminates opening or cracking at the edges, appears in the cross-section as "Two Little White Squares."

Patented, ingenious, offering an important advantage easily demonstrated by means of the handy cross-section (see diagram) and quickly appreciated by customers, the "Two Little White Squares" not only make this new Brunswick Seat easy to sell, but also are a guarantee that your profit, once made, is yours to keep.

Send for free sample
Cross-section and catalog

The moment you standardize on Brunswick White, sheet-covered seats, you can stop worrying about the profit of your toilet seat business.

Without obligation we will send you a catalog of our complete line of white sheet and colored sheet seats, and also a free cross-section showing the "Two Little White Squares." Simply use coupon below.



IN this cross-section, just a glimpse of two little white squares. That's all you can see of the Brunswick patented 9-ply reinforcement feature. But it means tough, wear-resisting pyralin at the critical edges 9 times thicker, 800 percent stronger!

THE BRUNSWICK-BALKE-COLLENDER CO., CHICAGO

Atlanta	Chicago	Detroit	Milwaukee	New York	Seattle
Birmingham	Cincinnati	Harrisburg	Minneapolis	Philadelphia	St. Louis
Boston	Cleveland	Houston	Nashville	Pittsburgh	Tampa
Buffalo	Dallas	Kansas City	Newark	Richmond	Washington
Charlotte	Denver	Los Angeles	New Haven	San Antonio	Montreal
Chattanooga	Des Moines	Memphis	New Orleans	San Francisco	Ottawa

Toronto Havana
Adelaide, Australia Sidney, Australia Johannesburg, South Africa

Brunswick

WHITE SEATS

WITH 9-PLY REINFORCED EDGES

Dept. **F-19,** Seat Division,
The Brunswick-Balke-Collender Co.,
623 South Wabash Ave., Chicago

Send your complete catalog of Brunswick Seats, together with free sample cross-section of the Brunswick white, sheet-covered seat.

Name .....

Address .....

City ..... *State* .....

there is no substitute for COHOES

Old fashioned puddled genuine wrought iron pipe

It takes five years or more to prove the merits of a pipe installation. Cohoes Pipe has *demonstrated* in 75 years of every conceivable use that it resists corrosion and rust, and is leak proof.

Our handbook of "Pipe Facts" contains authoritative information of sizes, weights and uses. Send for it.

COHOES ROLLING MILL CO.

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Branches: NEW YORK-CHICAGO-LOS ANGELES-SEATTLE-PORTLAND
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SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

Announce Consolidation

The Oster Mfg. Co. of Cleveland, Ohio, and the Williams Tool Corp. of Erie, Pa., have just completed a merger which brings together two of the oldest manufacturers of pipe threading equipment.

The Oster Mfg. Co. was founded in 1893 by Herman W. Oster and Russell B. Tewksbury. Its officers are R. B. Tewksbury, president; Roger Tewksbury, vice president and treasurer. Arthur S. Gould is secretary of the company.

The Williams Tool Corp. was founded in 1901, and its officers at the time of the consolidation were Horace W. Davis, president; E. P. Poole, vice president; and J. E. Humble, secretary and treasurer. Through the merger, Mr. Davis has been succeeded as president by Roger Tewksbury.

◆

Plans New Storage Space

The Connecticut Plumbing Supply Co., Stamford, Conn., has had plans prepared for a storage building on Canal street, in that city. Plans by architect E. J. Tardiff, 200 Atlantic street, Stamford, call for a concrete, hollow tile and brick structure 50x145 ft., two-stories high.

◆

Credit Association in New Quarters

The California Plumbing Jobbers Credit Association, San Francisco, Calif., has moved its headquarters from 74 New Montgomery street to 625 Market street, in that city, where larger quarters are provided.

National Plumbing & Heating Institute Holds First Meeting

The National Plumbing and Heating Institute held its first meeting at the Hotel Astor, New York City, on November 18 and 19. At the preliminary meeting the following associations were elected to membership: Eastern Supply Association, Central Supply Association, Western Supply Association and National Pipe and Supplies Association. On account of its central location, Chicago was selected as the principal office of the institute.

A committee composed of H. G. Starr, of Wm. H. Gallison Co., M. W. Dennison, of Braman, Dow & Co., and F. W. Hubbard, of W. B. Hubbard & Sons Co., all of Boston, Mass., was appointed to prepare, under the supervision of Louis E. Flye, attorney for the institute, a preliminary interpretation of the trade practice rules, such interpretation to be submitted to the board of directors for approval at its next meeting.

At a meeting of delegates of the four member associations above named the following board of directors was elected:

Manufacturers—Zone 1, H. M. Reed of Standard Sanitary Mfg. Co., Pittsburgh, Pa.; Zone 2, H. W. Seymour of Crane Co., Chicago, Ill.; Zone 3, H. V. Kohler of Kohler Co., Kohler, Wis.; Zone 4, M. J. Beirn of American Radiator Co., New York City; Zone 5, L. B. Peeples of Crane Co., Los Angeles, Calif.; Zone 6, J. J. Crotty of Central Foundry Co., New York City.

Wholesalers—Zone 1, M. W. Dennison of Braman, Dow & Co., Boston, Mass.; Zone 2, James A. Messer

Opens New Showroom

The Edwin Sterner Co. of Flint, Mich., has opened a spacious new showroom at 127 Lewis street in that city. The showroom is attractively arranged and decorated, and has an almost solid frontage of window display, which is lighted at night with twelve strong spotlights. The Sterner Co. recognizes the current trend in colored fixtures and has used them in combinations to carry out the decorative scheme of its display.

The new showroom of Edwin Sterner Co., Flint, Mich.

of James A. Messer Co., Inc., Washington, D. C.; Zone 3, J. C. McEwen of the Davies Supply Co., Chicago, Ill.; Zone 4, F. W. Swanson of Globe Machinery & Supply Co., Des Moines, Ia.; Zone 5, J. C. Bowles of Bowles Co., Seattle, Wash.; Zone 6, C. A. Dunlay of Dunlay-Armand Co., Houston, Tex.

F. W. Swanson was elected president of the institute and H. G. Starr was elected first vice president. The presidents of the four member associations were elected to serve as second vice presidents of the institute. These are: Joseph A. Maynard of Boston Brass Co., Waltham, Mass., president of the Eastern Supply Association; W. H. Kiefaber of W. H. Kiefaber Co., Dayton, Ohio, president of the Central Supply Association; George W. Manierre of Fitzpatrick & Locke Co., Los Angeles, Calif., president of the Western Supply Association; C. F. Harvey of A. Harvey's Sons' Mfg. Co., Detroit, Mich., president of the National Pipe and Supplies Association.

J. C. McEwen was elected treasurer and W. E. McCollum of Chicago was named temporary secretary. Frank S. Hanley of New York City, R. Kennedy Hanson of Pittsburgh, Pa., and Henry H. Boynton of Los Angeles, Calif., were named assistant secretaries.

The following were elected to serve on the executive committee: J. C. McEwen, chairman; H. M. Reed and C. F. Harvey.

Following a discussion in regard to additional members, it was the consensus of opinion that manufacturers in each branch of the manufacturing division should make application for membership in the institute and the secretary was instructed to issue such invitations.

◆

Moves New York City Office

Thos. Maddock's Sons Co., Trenton, N. J., is moving its New York City display rooms and office from 101 East Forty-fifth to 18 East Forty-fifth, to combine with the Standard Sanitary Mfg. Co. This move was brought about by the recent merger of the two companies. Lee A. Kelly remains in charge for Thos. Maddock's Sons Co.

◆

Opens Office and Display Room in Chicago

J. H. Balmer Co., Newark, N. J., has opened a sales office and display room at 825 W. Washington boulevard, Chicago, Ill. The formal opening took place on Monday and Tuesday, November 18 and 19. C. E. Wallace is manager of the new office.

Building New Branch Office in Atlanta

The Mueller Co. of Decatur, Ill., manufacturer of plumbing and heating supplies, is constructing a new branch building at Nelson and Mangum streets, Atlanta, Ga., which, it is expected, will be finished in the early part of December. The structure will be one story in front and two stories in the rear, with a heavy foundation to take care of two additional stories later. It is to be built of steel and concrete with stone trimmings, and will furnish 25,000 sq. ft. of space. The building has been designed with the Mueller company's particular needs in mind. W. B. Ford of Birmingham, Ala., will be in charge of the new office.

◆

Is Now Midwest Mfg. Co.

The Midwest Mfg. Co., Bradford, Pa., is the new corporate name of the two companies previously operated under the names of Midwest Air Filters, Inc., and Midwest Steel & Supply Co., Inc. The consolidation is a change in name only, and does not affect the former management or policies.

◆

Announces Consolidation

The Fintube Radiator Co., Inc., a New York corporation manufacturing enclosed radiation, has taken over the radiator division of the Metal Stamping Co., Long Island City, N. Y. The general offices and plant of the Fintube Radiator Co., Inc., are located in Long Island City, N. Y.

◆

To Enlarge Warehouse

The Stockham Pipe & Fittings Co., Birmingham, Ala., has taken out a permit for the construction of an addition to its warehouse at 2417 East 24th street, Los Angeles, Calif.

◆

Move Into New Offices

The C. B. Boatenreiter Co., manufacturer's agents, has removed from 1016 Atlanta Trust Co. building to 401 Southeastern Trust Co. building, Atlanta, Ga. The Boatenreiter company is a partnership, composed of Charles B. Boatenreiter and John B. Goodman. Mr. Boatenreiter has been identified with the plumbing and heating industry for the past fifteen years, while Mr. Goodman was for many years credit manager of one of Atlanta's largest banking institutions.

The annual engineering and sales convention of Carrier Engineering Corp., held at its offices in Newark, N. J.

THIS BOOKLET is YOURS FOR THE ASKING

In this day of hurry and bustle we are sometimes apt to overlook information that will be of real money-making assistance to us. There are many little short-cuts to better and easier work.

Take Pipe Fittings, for instance; how many of us are inclined to take them for granted! Yet they play a most important part in every pipe line. They cannot be considered as incidentals but rather as essentials, for many times it is upon them a reputation rises or falls. With these thoughts in mind we have prepared an interesting booklet that you will want to keep. It tells a story that will help you in many ways. Your copy is awaiting your request. Send for it today.

▼ ▼ ▼

MALLEABLE IRON FITTINGS COMPANY

BRANFORD, CONN.

MECHANICAL O.K. + INSPECTION O.K. MIF + FINISH O.K. + STANDARD

We are giving your customers the inside facts

Through our national advertising in magazines that your customers like to read best, we are giving them the inside facts about home heating comfort. We are explaining just why it is that Cadwell No. 10 Non-Adjustable Air Valves will save them money and give them greater comfort. We do this to help you help yourself.

Put in a stock of Cadwell Non-Adjustable Automatic Air Valves and be in a position to take care of business as a result of our consumer advertising. We cannot refer inquiries for Cadwell No. 10 valves to you unless you have a stock of our product to take care of this business.

The BEATON & CADWELL MFG. CO.

Established 1894

NEW BRITAIN, CONN.

Grinnell Co. to Build Warehouse in Seattle

The Grinnell Co. of the Pacific, Inc., Seattle, Wash., is planning erection of a warehouse on Bay street, between Railroad and Western avenues, in that city.

◆

Opens Office in Philadelphia

The boiler division of the Bryan Steam Corp., Peru, Ind., has established a new distributing office in Philadelphia, Pa., to cover the state of Pennsylvania. The organization will be known as the Bryan Boiler Corp., Philadelphia.

◆

Acquires Plant Structure

The Sundstrand Engineering Co., 2531 Eleventh street, Rockford, Ill., has acquired a one-story factory structure at Harrison avenue and Ninth street, in that city, according to an announcement made by Hugo L. Olson, chairman of the firm's board of directors. Equipment will be installed immediately for the manufacture of the company's products.

◆

Opens Office in Dallas, Texas

The Carrier Engineering Corp. of Newark, N. J., has announced the opening of a permanent engineering and sales office at 2706 Commerce street, Dallas, Tex. Thomas M. Cunningham, who has supervised previous work done by the company in Texas, is manager of the new office. William Moler, a native of Texas, who has had a varied background of experience with the Carrier corporation, is associated with Mr. Cunningham.

International Acetylene Association Meets at Chicago

The thirtieth convention of the International Acetylene Association was held at the Congress hotel, Chicago, on November 13, 14, and 15. The morning session of November 15 was the one of greatest interest to the heating and piping contractor. In addition to being presided over by John H. Zink, of Baltimore, Md., chairman of the sub-committee on welding of the Heating and Piping Contractors National Association, papers and discussions were presented treating with the welding problems encountered in piping installations.

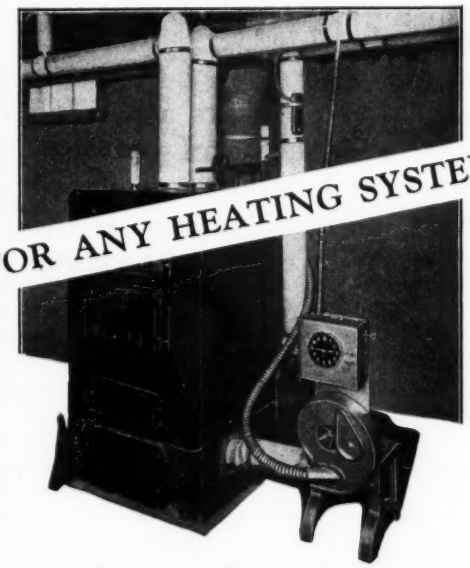
Significant, and typical of the co-operation which welding is receiving from the various agencies concerned, is the attitude of the insurance underwriters and insurance companies as reported by their representatives at this meeting. Several talks indicated the care which is being employed by various contractors to overcome welding fire hazards. As an illustration, in his talk entitled "oxy-acetylene welding in domestic heating installations," A. A. Kleim of Brooklyn, N. Y., showed slides of welding work, one set describing the bending and welding of piping at the ceiling of a New York store where the ceiling was covered with a thick layer of asbestos to prevent damage from the torch.

Welded steam piping was considered by Webster Talmadge of New York, and R. E. Fritsch of Louisville, Ky., discussed welding fittings.

Progress was reported by Mr. Zink in the matter of the welding manual of the Heating and Piping Contractors National Association.

NOW IS THE TIME TO SELL—

Thermolator



This is the residence type Thermolator attached to hot water heater.

Thermolator is a complete, automatically controlled combustion system for burning buckwheat anthracite or bituminous slack (without smoke) and at a stupendous saving.

It is different, a certain profit maker because it is what your customers need and want — and NOW is the time to sell it. Complete investigation on your part is the only way you'll ever be able to understand why it will do so much — why it is so easy to install—why it will make BIG MONEY.

We want up and doing agents, why don't you represent us in your territory? Write for complete data.

THERMOLATOR CORPORATION

ALLENTOWN PENNSYLVANIA

Hook with the Thermolator cuts coal bills-handles your heater

R. J. Reynolds Office Building, Winston-Salem, N. C., another fine building where a lasting pipe installation was assured by using Youngstown steel pipe throughout.

Architects
SHREVE & LAMB
Plumbing Contractor
RIGGS DISTLER & CO.

EASY TO INSTALL—

Makes a Good Job Better

YOUNGSTOWN STEEL PIPE is as easy to install as ordinary pipe—and has the added feature of insuring a piping job that will give a lifetime of service.

Modern buildings in ever-increasing numbers are being piped with Youngstown—because its record of performance has convinced plumbing and heating contractors, architects and engineers that Youngstown pipe is the soundest insurance of pipe performance, as well as being easy to install.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

One of the oldest manufacturers of copper-bearing steel, under the well-known and established trade name "Copperoid".

General Offices—YOUNGSTOWN, OHIO

DISTRICT SALES OFFICES

ATLANTA—Healey Bldg.
BOSTON—80 Federal St.
BUFFALO—Liberty Bank Bldg.
CHICAGO—Conway Bldg.
CINCINNATI—Union Trust Bldg.
CLEVELAND—Union Trust Bldg.
DALLAS—Magnolia Bldg.
DENVER—Continental Oil Bldg.
DETROIT—Fisher Bldg.
KANSAS CITY, MO.—Commerce Bldg.
LOS ANGELES—3000 Santa Fe Ave.
MINNEAPOLIS—Andrus Bldg.
NEW ORLEANS—Hibernia Bldg.
NEW YORK—30 Church St.
PITTSBURGH—Oliver Bldg.
PHILADELPHIA—Franklin Trust Bldg.
SAN FRANCISCO—55 New Montgomery St.
SEATTLE—Central Bldg.
ST. LOUIS—Shell Bldg., 13th and Locust Sts.
YOUNGSTOWN—Stambaugh Bldg.

LONDON REPRESENTATIVE—The Youngstown Steel Products Co., Dashwood House, Old Broad St., London, E. C. England

YOUNGSTOWN

GALVANIZED SHEETS PROTECT -:::- SAVE WITH STEEL

Will Work with P. & H. Institute on Industry Policies

The Plumbing and Heating Industries Bureau, Chicago, Ill., has issued the following statement of plans for co-operation with the newly formed National Plumbing and Heating Institute:

"Co-operation between the Plumbing and Heating Industries Bureau and the newly-organized Plumbing and Heating Institute in outlining and putting into effect policies for the promotion of the welfare of the two industries is assured as a result of a conference between representatives of the Bureau and the Institute in New York on November 19.

"Spokesmen for both organizations at the conference pointed out that since increased profits for all branches of the industries is the common object of both the Bureau and the Institute, the two organizations should co-operate to promote the best interest of the industries.

"The fact that members of the various branches of the industries do not follow uniform and standardized policies was the principal topic discussed at the meeting of the board of directors of the Plumbing and Heating Industries Bureau at the Palmer House, Chicago, on November 14. It was decided to make policy-determination one of the dominant activities of the Bureau in 1930 and a committee was appointed to enlist the co-operation of the Plumbing and Heating Institute. The committee, consisting of John A. Quinn, president of the National Association of Master Plumbers, represented by National Secretary M. J. Feeney; W. L. Schaeffer, advertising manager of the National Tube Co.; H. A. Snow, chairman of the committee on trade promotion of the Heating and Piping Contractors National Association, represented by Joseph Fitts, assistant secretary of the Heating and Piping Contractors National Association; and E. L. Flentje, secretary-manager of the Bureau, met with the officials of the Institute in New York on November 19 and obtained a promise of full co-operation from the Institute. The Institute will elect representatives to sit on the board of directors of the Bureau.

"All organizations in the industries will be asked by the Bureau's board of directors to commit themselves to a policy of co-operation with the Bureau in determining and in carrying out uniform policies. The Bureau staff will act as the agency for the assembling of data on problems and policies. This material will then be studied by committees appointed by the board of directors. These committees will then report their findings to the board and these findings, if approved by the board will stand as the accepted recommendations to existing associations in the industries.

"Members of the board at the meeting on November 14 pointed out that the industries are in urgent need of a uniform policy on credits and on the promotion of merchandising among contractors. Under existing sales policies, the contractor who maintains a showroom and a display window has higher costs than the contractor who does not have these display facilities and yet has no assurance that such facilities will result in additional profit to him. This is cited as an example of the type of problem which the board will study with the thought of formulating an industry-wide policy.

"The board would like to have all members of the

SPENCER
steam, vapor or hot water
HEATERS
With the Magazine Feed and sloping Gable-Grate.
They save money for owners and make money for you.
Spencer Heater Company
Williamsport, Pa.
New York Boston Philadelphia
Buffalo Rochester Syracuse Albany
Baltimore Hartford Scranton

AUTOMATIC TEMPERATURE REGULATION
Get this free book!
Write for it today! All the facts about how to sell the Jewell Temperature Regulator, the big-profit specialty that meets today's demand for automatic heating. Minneapolis-Honeywell Regulator Co., Executive Offices: 2801 Fourth Ave. So., Minneapolis. Factories: Minneapolis, Minn. and Wabash, Ind.
Jewell
TEMPERATURE REGULATOR

The FAMOUS Sylphon TRADE MARK BELLOWS
Original — Genuine
Sylphon Temperature Regulators, Pressure Regulators and Expansion Joints are in almost universal use, in thousands of buildings, in nearly all industrial plants, in great power plants, and in the homes of the people.
The Fulton Sylphon Company, Desk D Knoxville, Tenn., U. S. A.

Paragon SELF-CLOSING FAUCETS with renewable seats
SMOOTH ball-bearing action. Patented "Samson" Lock, which makes Paragon handles easiest to adjust without special tools. Longer wear — better action. A wide variety of bodies and handles. Write for folder on the complete line.
Through your Wholesaler.
The CENTRAL BRASS Mfg. Co.
PARAGON DIVISION CLEVELAND O.

"FLUSH-KLEEN"

(Sewage Ejector)

Rags-Sticks-Paper Cannot Clog a "Flush-Kleen"

SEWAGE NEVER TOUCHES THE IMPELLER

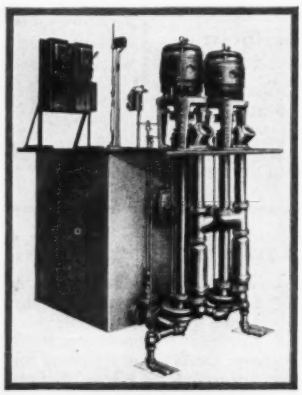


Fig. 2046—Duplex, Dry Basin "Flush-Kleen" Sewage Ejector

"Flush-Kleen" Ejector employs the flow reversal principle—just like backwashing a filter. "Flush-Kleen" Strainers are cleaned automatically on each operation of pumps—eliminating manual cleaning of sewage screens.

Ask for Bulletin 125. Representatives in principal cities.

CHICAGO PUMP COMPANY

SEWAGE-CONDENSATION-CIRCULATING
BILGE-FIRE-HOUSE-VACUUM

2322 Wolfram St., Chicago Phone Brunswick 4110

TRENTON BRASS PRODUCTS

FLUSH VALVES

Smooth operation—dependable service. Those are the things you expect from a Trenton Flush Valve and what's more those are the things you get. They have been doing the work for others for years and they'll do your work too, try them.

The Trenton Brass & Machine Co.

TRENTON NEW JERSEY

Represented by
ROLLIN C. WILSON

7 E. 42nd St., New York, N. Y.
261 Franklin St., Boston, Mass.
13 North Ave., East, Cranford, N. J.

Bureau become more familiar with the activities and problems of the Bureau. A motion was passed that each director invite at least one member of the Bureau to attend subsequent meetings of the board in order that he might be familiarized with the workings of the Bureau.

"The board authorized the employment of one man to devote all of his time during 1930 to the writing of articles on plumbing and heating for newspapers and magazines. The board believes that the publicity opportunities in the 660 daily newspapers which publish home building pages once a week are especially promising. The Bureau has already received assurances from newspapers with a total daily circulation of more than 7,000,000 copies that articles on plumbing and heating will be printed on the building page.

"The experience of the Bureau in placing articles on plumbing and heating in magazines during 1929 would indicate that many excellent publicity opportunities exist in the building magazines, architectural publications, women's periodicals, farm magazines, building and loan publications, real estate journals, magazines devoted to modernizing, etc.

"The board approved a recommendation for a change in the editorial content of the Bulletin. Beginning early in 1930, possibly with the February or March issues, every issue of the Bulletin will be virtually a manual on the selling of some particular fixture or group of fixtures. This type of sales material will be based upon actual experiences of successful contractors. Only tried and proved methods will be reported.

"The board decided that the Bureau should continue the distribution of accounting materials, sales helps of various kinds, and literature and text material on apprentice-training and journeymen training.

"A budget of $100,000 for the year 1930 was authorized by the board. The board directed the cancellation of all pledges terminating at dates later than December 31, 1929, and ordered that solicitation be on the basis of the new program.

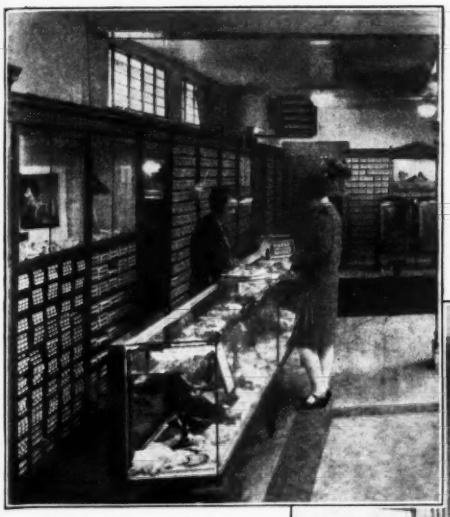
"Jere Sheehan, Jr., presided at the meeting and the following members were present: Walter Klie, H. M. Hart, Wm. G. Bergner, H. A. Snow, George Drake, C. W. Wanger, John A. Quinn, E. D. Hornbrook, A. C. Eynon, William J. Lang, W. L. Schaeffer, A. B. Pierce, W. K. Glen, William Scudder, V. L. Sheldon, J. P. Baldwin and E. L. Flentje, member ex-officio. John Kohler representing H. V. Kohler and F. S. Kaulback representing H. M. Reed were in attendance."

◆

Hold Entertainment in Display Rooms

The Harris Pump & Supply Co., Pittsburgh, Pa., recently entertained a number of its customers in its display rooms at 320 Second avenue, in that city. A program of music and a buffet luncheon was provided for the guests.

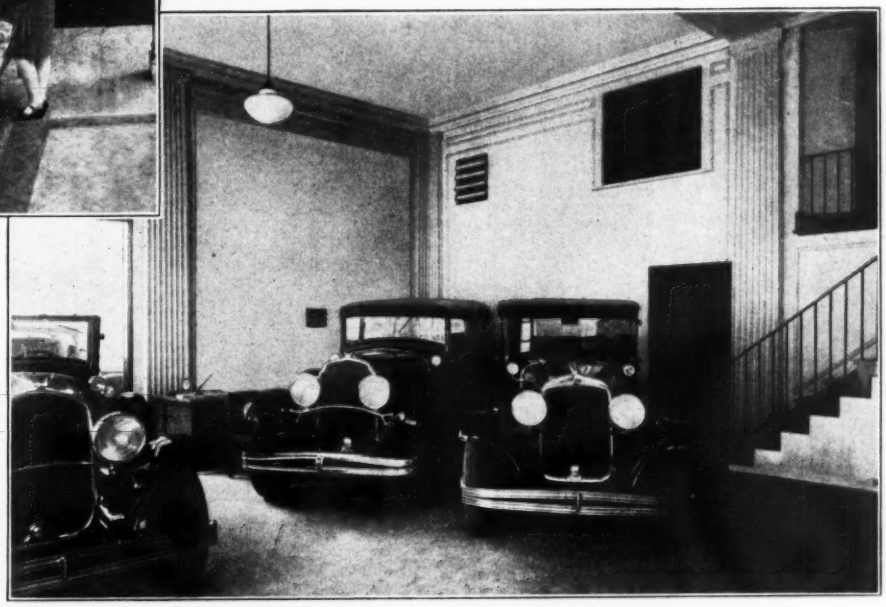
Representatives of several manufacturing firms were present and spoke during the evening. Among them were H. A. Beighel and J. G. Entress, both of The Herman Nelson Corp.; Raymond Woods of the Central Brass Mfg. Co.; R. C. Stanton of Adams Bros. Mfg. Co., Inc.; J. H. Bacon and J. A. Owens, both of the Richmond Radiator Co.

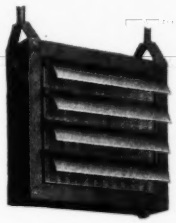


30 to 40% Saving in First Cost . . with Trane Unit Heating

One of many Trane Unit Heaters with ornamental covering in prominent chain store.

Typical installation of Trane Unit Heater in automobile showroom.





An installation of Trane Unit Heaters costs approximately 30 to 40% less than cast iron radiation but that is only one of the many advantages. Trane Unit Heating is truly a scientific method of heating large spaces such as stores, offices, public buildings, churches, garages, factories, etc. Marked savings in fuel consumption are effected because of the proper distribution of heated air. If desired, automatic regulation can be applied to Trane Unit Heaters, giving close control under all-weather conditions and highest heating efficiency.

The patented heating element is largely responsible for the outstanding success of Trane Unit Heaters. It combines light weight with great ruggedness. The average weight of the 17 types and sizes of Trane Unit Heaters per square foot of equivalent direct radiation is only 32/100 pounds, yet every unit is tested to a 350 pound pressure and will stand a great deal more.

Trane Unit Heaters, when installed with outside air ducts, provide ventilation that will meet the strictest regulations. We will gladly send you full information on Trane Unit Heating. Fill in and send the coupon today.

TRANE

UNIT HEATING SPECIALISTS

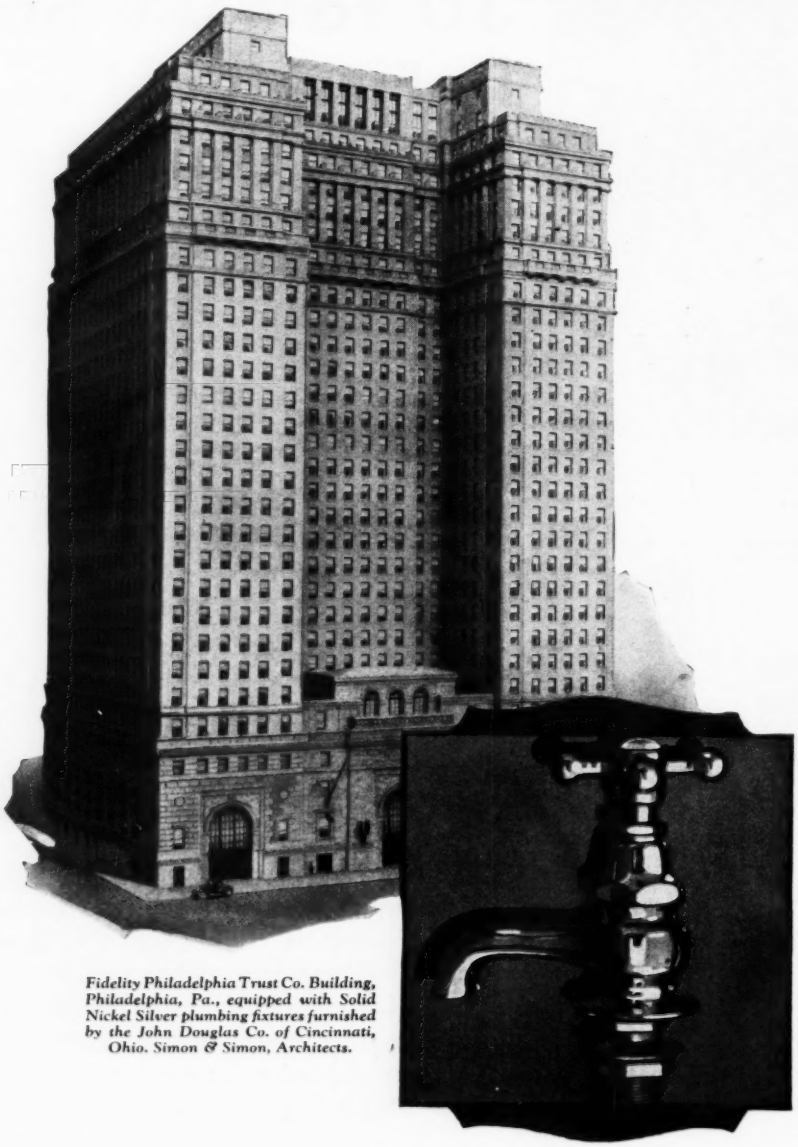
THE TRANE CO., Dept. 11,
204 Cameron Ave., La Crosse, Wis.
Send free booklet on "How to Cut Heating Costs."

Name.....

Address.....

City..... State.....

MEETING ARCHITECTURAL STANDARDS OF QUALITY



Fidelity Philadelphia Trust Co. Building, Philadelphia, Pa., equipped with Solid Nickel Silver plumbing fixtures furnished by the John Douglas Co. of Cincinnati, Ohio. Simon & Simon, Architects.

SOLID NICKEL SILVER PLUMBING FIXTURES by DOUGLAS

Among the fabricators of Solid Nickel Silver equipment is the John Douglas Co. of Cincinnati, Ohio. This company is regularly producing plumbing fixtures which are pressure tight and have all the beauty, lustre and long-wearing qualities afforded by alloys of high Nickel content... Solid Nickel Silver offers advantages that impress architects and builders whose clients demand the best. The physical properties of Solid Nickel Silver—hardness, toughness and strength—resemble those of tough bronze. It combines the beautiful, lustrous color associated with Pure Nickel with the improved wear-resistance characteristic of high Nickel Alloys... When you specify Solid Nickel Silver for quality plumbing, you specify the most modern type equipment.

18% 22 Nickel SILVER

THE INTERNATIONAL NICKEL COMPANY (INC.), 67 WALL STREET, NEW YORK, N. Y.

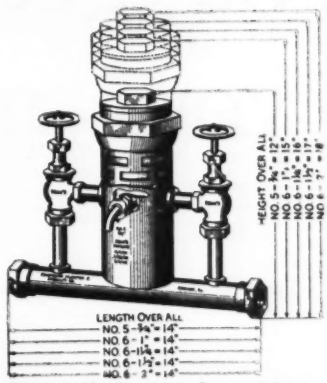
New York Chapter Holds Meeting

The New York Chapter of the National Association of Plumbing and Heating Salesmen held a meeting on November 21 at the Murray Hill hotel, and were addressed by William E. Taylor, secretary of the Heating and Piping Contractors New York City Association, as well as a number of officers from master plumbers' associations throughout Greater New York. After qualifying himself as a salesman, Mr. Taylor in his address charged that profession with the responsibility of doing its full share toward advancing the plumbing and heating industries. Touching on profitless business, the speaker pointed out that salesmen, as one of the chief contributory influences, can do much to restore business to a more substantial plane. As an indication of the work in this direction which must be done, Mr. Taylor explained, that as a result of a nine months' survey which he made, it was found that in 1928 heating contracts amounting to $60,000,000 were awarded in New York City; $40,000,000 of this amount represented the

Top picture: Officers of the Long Island Plumbing & Heating Supply Association—H. J. Allen, secretary; William M. Rummel, of Mineola Plumbing Supply Co., vice president; A. J. Dowdeswell, of National Radiator Co., treasurer; C. Klem of Klem & Hellwig, Inc.; H. S. Van Duyne, of Paul Ayres Co., director. In back: E. D. Thayer, of M. E. Conran Co., Inc., president. Middle picture: J. A. Kidder, Paul Chapman, W. M. Rummel, president, and J. J. Connors, all of Mineola Plumbing Supply Co. Seated: L. A. Przyticin, H. A. Vanderhoof, P. C. Sylvester, secretary, V. P. Gleason, treasurer. Bottom picture: Baseball team of manufacturers' representatives, losers in the game with the wholesalers. Photos taken at the outing of the Long Island Plumbing & Heating Supply Association

1897 DEHNSANIGARD THE QUALITY GOODS 1929

Selling Everywhere



The real test of the worth of any article is in its continued growth in sales.

Fig. 118 No. 5—¾-inch Compound Injector. Patented in U. S., Canada and Foreign Countries.

From the time the Dehn Automatic Water Softener was placed on the market it has shown an ever increasing rise in sales.

The fact that more and more plumbers place repeat orders for it for new work is final proof of its serviceability and profit.

Ask your jobber or write direct for full information.

COMPOUND INJECTOR & SPECIALTY CO.

419-421 D. North Laramie Avenue, Chicago, Illinois, U. S. A.

Originators, designers and sole manufacturers of

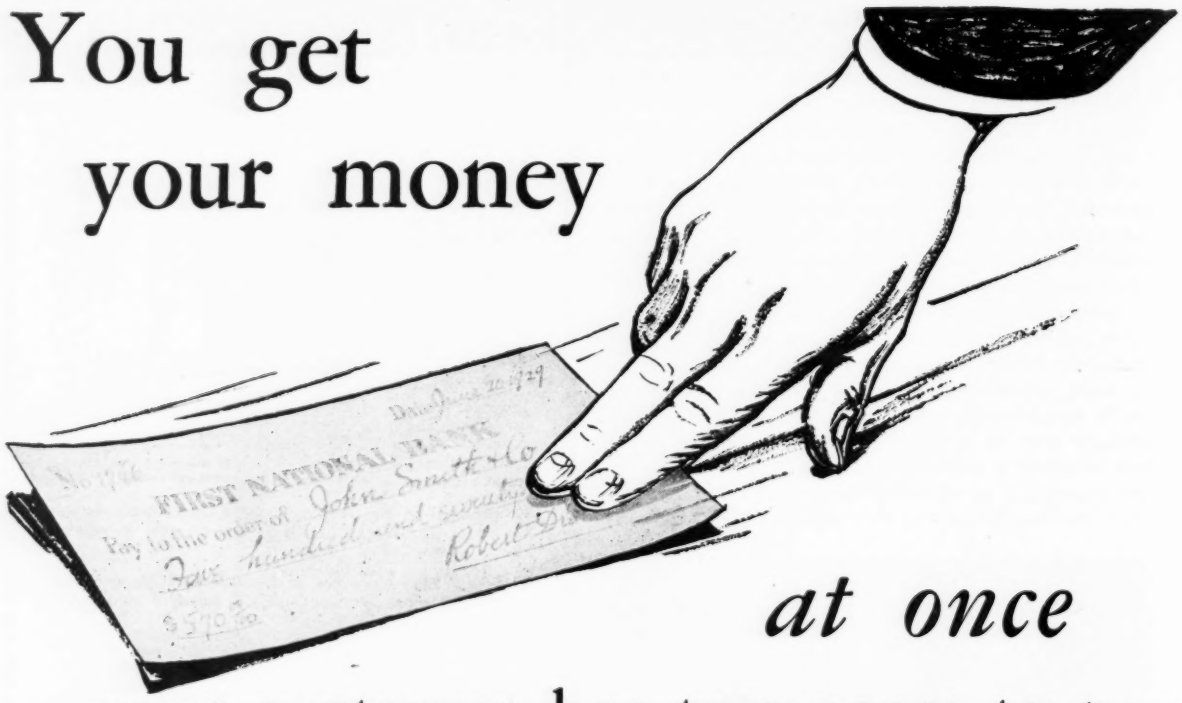
1897 DEHNSANIGARD THE QUALITY GOODS 1929

POORLY threaded brass goods wear easily and come loose. Threading with the greatest accuracy and in the most modern manner assures you of an easily fitted fixture when you specify Enterprise Brass Goods for all your work.

From your jobber —, or write us direct.

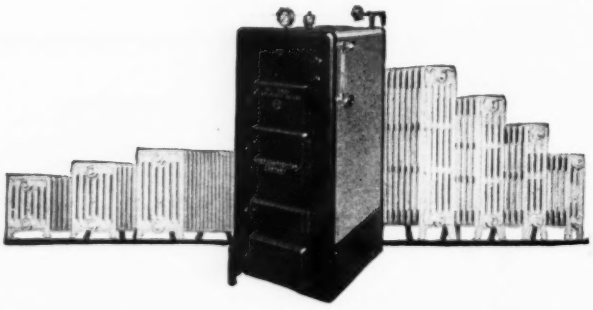
ENTERPRISE
BRASS WORKS
MUSKEGON, MICHIGAN

You get your money



at once

—your customer has two years to pay



HERE is a way that you can increase your business tremendously—a way to sell heating and plumbing installations to prospects who can't afford to pay for it all at once—a way to bigger profits.

Although your customer can take two years to pay you get all of your money immediately. There is no waiting, no red tape. This plan has been worked out, and is operated by the Heating & Plumbing Finance Corporation for one purpose only, and that purpose is to increase your sales. It was not planned to make profits for this company. In every part of the country heating contractors have proved that our time payment plan really works, and that it does do just what it was designed to do—bring increased business into your door and profits into your bank account.

We will be glad to tell you just how this plan works and to show you just what it has done for other contractors. Write for a copy of "This Way to Profits" or ask our salesman about it.

Features of the Finance Plan
for
AMERICAN RADIATOR COMPANY

Simplest Forms	Free Credit Investigation
Lowest Fees	No collection expense
Low down payments	No Money "hold-back"
No legal expense	Terms: up to two years

Backed by a million dollar advertising campaign of the American Radiator and Standard Sanitary Corporation.

HEATING & PLUMBING FINANCE CORPORATION
Division of
AMERICAN RADIATOR COMPANY
40 WEST 40th STREET NEW YORK

cost of materials, and the profit derived from the work by contractors was shamefully small. He also outlined the efforts of the New York building industry, which is now organized to better its position.

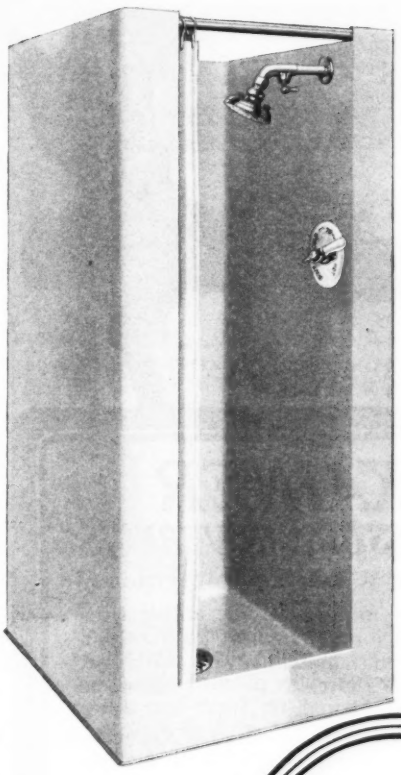
Harry Sugarman, president of the Master Plumbers' Association of the Bronx, pledged the support of his organization in any movement that will tend to improve present methods of selling plumbing and heating materials.

Patrick Gleason, president of the Brooklyn Master Plumbers' Association, in a short talk enumerated some of the disadvantages under which business is laboring in his borough. These had to do mostly with improper salesmanhip and heating installations made by incompetent contractors.

Emil Siekmann, president of the Staten Island Master Plumbers' Association, outlined a suggestion that is now being worked out in his borough which requires that financial institutions interested in home construction require certain installation standards be maintained for the plumbing and heating in all properties financed. This effort, Mr. Siekmann said, is directed toward unscrupulous contractors whose competition is unfair.

William F. Weber, secretary of the chapter, who conducted the meeting at the request of President J. L. Spivak, offered his plan of a council under centralized control as a means of giving the industries a better economic position. Secretary Weber asked each officer of the master plumber organizations to submit the plan to his local association for adoption or rejection. The by-laws, as suggested by Mr. Weber in his outline of closer relationship, set forth a concrete means of promoting better understanding, eliminate duplication of activities, and further the best interests of those concerned with the plumbing and heating industries in New York City. The plan covering membership in the council permits five representatives from each of the recognized trade organizations whose appointment is made at the discretion of its officers. It also provides for the annual election of officers of the council, means of financing its activities, the maintenance of a permanent office, a

Top row: A. A. Emerick, Fred Barton and D. D. Reed. Bottom row: J. William Simmons, C. D. Allen, E. J. Anderson and George H. Pipper. Photos taken at the meet of the Michigan Trade Golf Association at Lake Shore Country Club



As pictured: the face of the NIEDECKEN SHOWER HEAD is easily removed for cleaning, by merely loosening three screws with ordinary wire nail. The patented lug and notch is the guide to replace the shower head face into proper place and alignment; and it is made as secure as when originally assembled.

Your Reputation

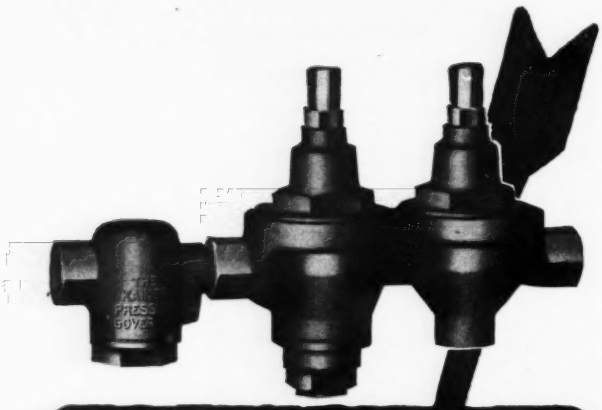
Every order you fill, every job you complete, should be guarded against all complaint, criticism and loss to you

NIEDECKEN SHOWERS

—shower stall, shower head and mixer—are entirely free from all and any defect. The advanced, patented, new, exclusive NIEDECKEN features give PERFECT shower bath convenience, satisfaction and service. And you profit most when your customers are perfectly pleased. So acquaint yourself fully with all of the NIEDECKEN shower advantages, for the bigger, better business they will mean to you.

HOFFMANN & BILLINGS MFG. COMPANY
Milwaukee, Wisconsin

Write—now—for fully descriptive Bulletin.



The KAINER
PRESSURE GOVERNOR
for Hot Water Heating Systems

More and more plumbing and heating contractors and engineers are recommending and installing the KAINER Pressure Governor in place of expansion tanks and fittings on their hot water layouts.

The overwhelming nationwide acceptance of the KAINER during the past few years affords ample proof of the sound engineering principles that characterize the design and construction of this dependable Governor.

The KAINER Governor reduces the cost of a hot water lay out, simplifies installations, makes a better job, saves your time and your customer's money, increases your profits and builds good will.

Write today for full information

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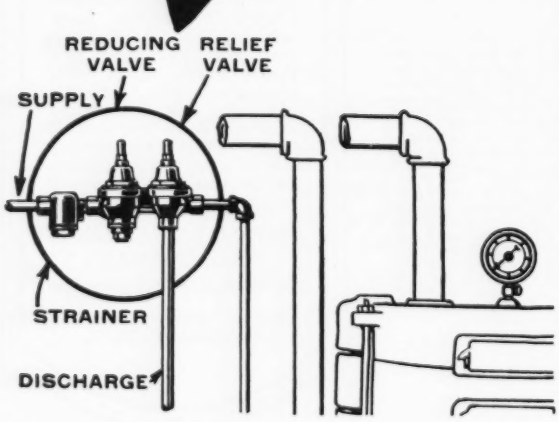
Manufacturers



schedule of meetings and provision for any changes deemed necessary. The need for a council such as Secretary Weber's proposition offers was discussed at length.

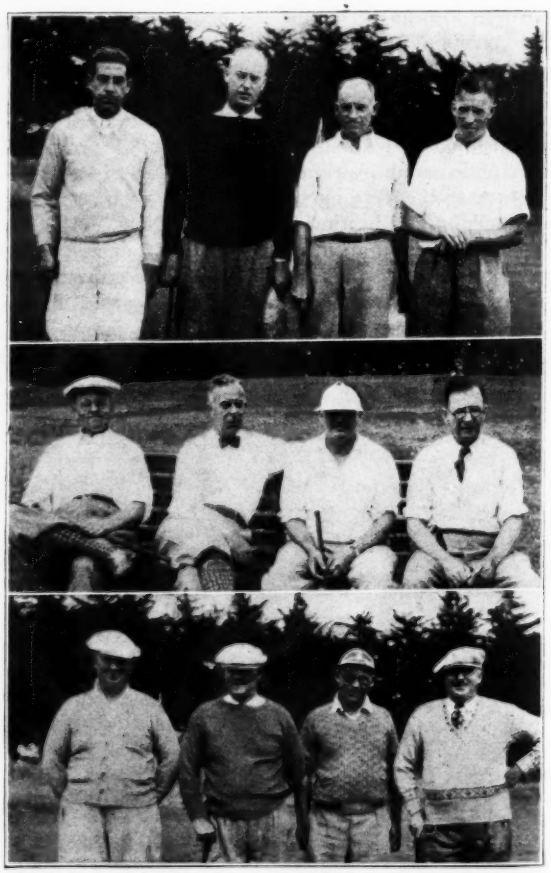
Harry Olson, of the Nye Tool & Machine Works, and Harold Thompson, Oster Mfg. Co., in brief talks, both called attention to the number of ways in which salesmen can lend assistance in furthering the plan.

◆

Rochester Wholesalers Participate in Exposition

The exhibits of the wholesale plumbing and heating firms of Rochester, N. Y., were much in evidence at the recent Better Homes and Building Exposition, held at the state armory, in that city, the week of November 11 to 16. Many of the newest features in plumbing and heating supplies were on display. One display that attracted much attention, was the display by the Samuel Sloan Co. of a bathroom in lavender.

The Rochester exposition is doing much good work in bringing to the attention of the house owner and potential home owner the things that go into a house to make it a home, and one of the most important of these is plumbing and heating. The Home Modernization Bureau had an excellent display of modernizing plans at the exposition.



Top row: Stuart Greenberg, C. C. Anderson, C. N. Gilley, and C. J. McCarthy. Middle row: F. J. Chittenden, Ross M. Clark, J. W. Forsythe and Benjamin F. Blair. Bottom row: M. S. Greenberg, Donald O'Hair, Ed. J. Kraus and H. Weiss. Photos taken at the Crystal Springs golf tournament of the San Francisco Plumbing and Heating Club

Obituary

George G. Harvey

George G. Harvey, president of A. Harvey's Sons' Mfg. Co., Detroit, Mich., died at his residence in that city on Monday evening, November 18. Mr. Harvey was the son of the late Andrew Harvey, one of the founders of the company, and had been associated with the firm for more than forty years. Recently, he succeeded James Harvey, former president of the company, who died December 8, 1928.

◆

Ward R. Bowles

Ward R. Bowles, president of the Consolidated Supply Co., Portland, Ore., died recently in his 37th year after a prolonged illness. Mr. Bowles, who was a graduate of Harvard university and the Massachusetts Institute of Technology, was associated with a Seattle shipbuilding concern during the world war, and later became connected with a Portland steel company. Subsequently he was vice president of the Portland branch of the wholesale plumbing firm of Bowles Co., Seattle, Wash., until he was made president of the Consolidated Supply Co. Mr. Bowles was also identified with several business ventures outside of the plumbing industry.

He was a member of the Masonic lodge, Arlington club, Portland and Waverly Golf clubs, and is survived by his widow, a son and his mother.

◆

H. S. Fife

H. S. Fife, Philadelphia, Pa., died on November 13, in his 43rd year. Mr. Fife covered the territory including Philadelphia, New York City and the Middle Atlantic states, for the Kitson Co. of Philadelphia, with which he has been connected since 1913. He was previously employed by Haines, Jones & Cadbury Co., Philadelphia. Mr. Fife had a large number of friends in the industry. He is survived by his wife and a daughter.

H. S. Fife

◆

William E. Boyne

William E. Boyne, representative of the Buffalo, N. Y., branch of Crane Co., on November 16 succumbed to injuries sustained when his automobile was struck by a taxicab late in the afternoon of the previous day. Ray Partenfelder, representative of Engineering Publications, Inc., who was returning from Medina, N. Y., with Mr. Boyne, sustained grave injuries but is slowly recovering at Columbus Hospital, Buffalo. Mr. Boyne, who was one of Buffalo's best golfers, as a member of that city's public links' team competed in national tournaments. Having severed his connection with R. J. McAuliffe as a professional at Grover Cleveland park, he

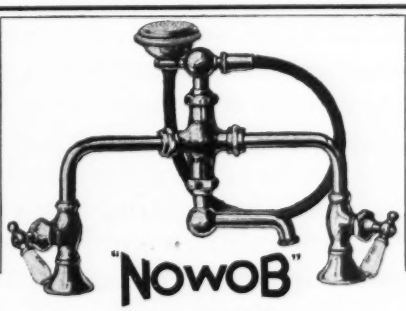
Moore RADIATOR HANGERS

An Extra Measure of Saving

Because of the wide range of adjustability in Moore Radiator Hangers, you can hang the radiator where you want it and you can do it in less time.

Less time means less labor and less cost. Moore Radiator Hangers—the extra measure hangers—insure real saving for both the customer and yourself.

CARTY & MOORE ENGINEERING COMPANY
(Incorporated)
611 W. Larned Street - - Detroit, Michigan



12-in. Center to Center
D-478

"No Wear on Body"

The "Nowob" construction will be found only in S & K Rainbow faucets. This shampoo outfit is equipped with a "Nowob" body which means that the body will never wear out and will last as long as the building.

It is placed on the slab and *remains there for good.*

No switch valve or sliding device *between the swing spout and swing shampoo attachment.*

Ask your jobber to show you the S & K "Nowob" line.

STREET & KENT MFG. CO.
1954-64 CLYBOURN AVE. CHICAGO

It outlasts them all!

Manufactured by
THERMAL UNITS COMPANY
A subsidiary of the MECHANICAL MFG. CO.
PERSHING ROAD AND LOOMIS STREET, CHICAGO
Eastern Office: 50 CHURCH STREET, NEW YORK CITY

Build your reputation on LEAD *—the dependable metal.*

EAGLE-PICHER

BY SPECIFYING Heggie-Simplex Steel Boilers, architects and building committees for many important structures have endorsed what Heggie's 37 years have accomplished—the most modern of heating boilers, in which scientific design combines every essential with preeminent quality.

HEGGIE-SIMPLEX BOILER COMPANY
JOLIET, ILLINOIS
Representatives in Principal Cities

YOUR FITTING PROBLEM IS SOLVED
when you say
"SQUARE GEE'S"

SQUARE Pipe — MALLEABLE, CAST IRON
"GEE" Fittings — DRAINAGE, BRASS

THE GRABLER MANUFACTURING CO. and its subsidiary GRABLER-REPUBLIC, Inc.
New York · · · · · · Chicago · CLEVELAND, OHIO · *San Francisco · Los Angeles*

had made application for reinstatement as an amateur.

Mr. Boyne was in his 32nd year and is survived by his widow, a son and daughter, besides his parents and two sisters. He was a member of Semper Fidelis Post 356, American Legion; Buffalo Lodge 23, B. P. O. E., Buffalo Ad Club, and the American Society of Heating and Ventilating Engineers.

◆

Charles W. Morse

Charles W. Morse, New England manager for the Automatic Sprinkler Corporation of America, with offices at 89 Broad street, Boston, Mass., died recently when stricken with a heart attack at his office. Mr. Morse who was in his 55th year, resided at 145 Longwood avenue, Brookline, Mass. He was born in Cincinnati, Ohio, and was a veteran of the Spanish-American War. He had been New England manager for the sprinkler company since 1925.

Personal Mention

CLARENCE M. WOOLLEY, chairman of the board of directors of American Radiator & Standard Sanitary Corp., New York City, was called, together with a number of other prominent business leaders, to Washington by President Hoover on November 21 to participate in a discussion intended to further the President's endeavors toward stabilizing the nation's business.

ERNEST LAIDLAW, formerly manager of the Hamilton, Ont., branch of Crane, Ltd., has been appointed assistant general manager of Crane-Bennett of London, England. Mr. Laidlaw will leave for the British Isles at an early date. He has been with Crane Company since he returned from overseas and is well known in the Canadian plumbing trade. HERBERT VALLIS of the Toronto branch of Crane Co. will succeed Mr. Laidlaw as manager of the Hamilton branch.

J. L. STULSAFT, who has had a wide experience as a manufacturer's representative, has been appointed to represent the Reading Foundry and Supply Co. of Reading, Pa., in Northern New Jersey, New York state and the Metropolitan area of New York City. He will handle the company's line of cast iron specialties.

LEO SHERMAN of the Vinco Co., Inc., New York City, has recently given several lectures and made several demonstrations of the use of boiler liquids. One demonstration was held in Springfield, Mass., another in Boston, before a combined gathering of the American Society of Heating and Ventilating Engineers and Heating and Piping Contractors Boston Association, Inc., and a third in Providence, R. I., for salesmen of American Radiator Co.

CLEON D. BROWN has recently been made sales and advertising manager of the Milwaukee Tank Works, Milwaukee, Wis. Mr. Brown was previously a member of the staff of Klau-Van Pieterson-Dunlop-Younggreen, Inc., advertising agency. For ten years he was manager of the Denver branch of A. J. Lindemann & Hoverson Co., and for five years was sales manager of the Alcazar Range & Heater Co. He also served as secretary of the Sales Managers' Association of Milwaukee.

(Continued on Page 119)

Genuine

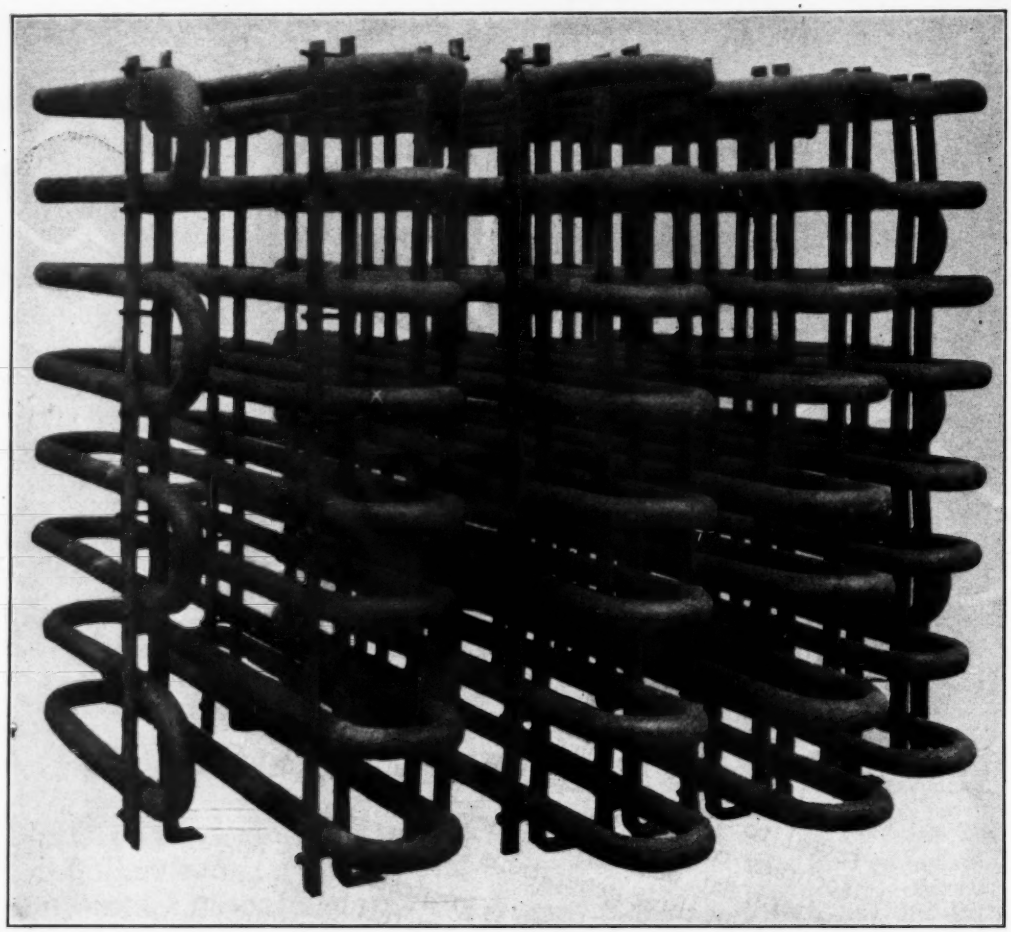
Merely handling Mueller Brass Pipe Fittings will reveal to you new departures in strength and accuracy of threading. They are of the heavy pattern, flat bead type. They are the result of more than three generations of brass making.

Where the tensile strain is greatest, at the edge of the fitting, the bead has been reenforced with extra metal sufficient to resist the screwing-up strain. This makes it possible for the plumber to install screw joints that will be water-tight, strong and permanent.

The Mueller manufacturing process has been brought to that stage of perfection which assures positive freedom from sand holes or flaws of any kind. Each fitting is carefully checked and inspected before being passed into stock. Because of the special Mueller manufacturing process we have found in rigid tests that these fittings will not split even when installed under the most adverse conditions.

Your jobber can supply you

Mueller Brass Co.
PORT HURON · MICHIGAN
THREE GENERATIONS OF BRASS MAKING



WHERE NON-LEAK JOINTS ARE IMPORTANT

For refrigerator coils especially, Airco Oxyacetylene welded joints have been found desirable because they are as strong and permanently leak-free as the pipe itself.

And with up-to-date methods, available to Airco customers through Airco engineering assistance, the cost has been brought down so that it is often lower than for any other type of installation.

If you are not already welding, it would be worthwhile to write to your nearest Airco office listed below.

AIR REDUCTION SALES COMPANY

HOME OFFICE: 342 MADISON AVE., NEW YORK

Baltimore	Buffalo	Dayton	Louisville	Philadelphia	Seattle
Bettendorf, Ia.	Charlotte, N. C.	Detroit	Milwaukee	Pittsburgh	St. Louis
Birmingham	Chicago	Emeryville, Cal.	Minneapolis	Portland, Ore.	Wheeling
Boston	Cleveland	Jersey City	New Orleans	Richmond	90 Plants
		Los Angeles	Oklahoma City		

AIRCO — DAVIS BOURNONVILLE

Airco Oxygen—Airco Acetylene—Airco-Davis-Bournonville Welding and Cutting Apparatus—Supplies—Airco National Carbide

(Continued from Page 116)

CHARLES P. CLAMPITT has recently been appointed manager of the Chicago office of The Alexander Milburn Co. of Baltimore, Md. Mr. Clampitt has been connected with the industry for a number of years and has a wide knowledge of the Chicago territory. The Chicago office of the company is located at 220 S. State street.

JOHN W. CRAWFORD, of Los Angeles, Calif., for the past eighteen years sales engineer for James P. Marsh & Co. of Chicago, in the Southern California territory, is now representing the Marshalltown Mfg. Co. of Marshalltown, Ia., as sales engineer. The change became effective November 15.

C. M. LOCKWOOD, formerly sales manager of the Williams Oil-O-Matic Heating Corp., has been made sales manager for Rayfield Mfg. Co.

W. J. HEPBURN has resumed his duties as general manager of the Seashore Supply Co., Atlantic City, N. J.

J. J. SNYDER, formerly connected with the Cleveland, Ohio, branch of the Standard Sanitary Mfg. Co., has recently joined the sales staff of Wm. B. Scaife & Sons Co., Pittsburgh, Pa. Mr. Snyder will travel throughout Pennsylvania, Ohio, Indiana, Michigan, Kentucky and West Virginia.

JOSEPH EDGE, formerly with The Lowry Co. of Atlanta, Ga., has joined the sales force of the Republic Iron & Steel Co., Youngstown, O. He will have headquarters in the Atlanta Trust Company building, Atlanta.

November Meeting of the Western N. Y. Chapter of the A. S. H. & V. E.

The monthly meeting of the Western New York Chapter was held in the Rathskeller of the Markeen Hotel, Buffalo, N. Y., on Monday evening, November 11. About thirty members and guests were present at the dinner, and about six more came in later for the meeting.

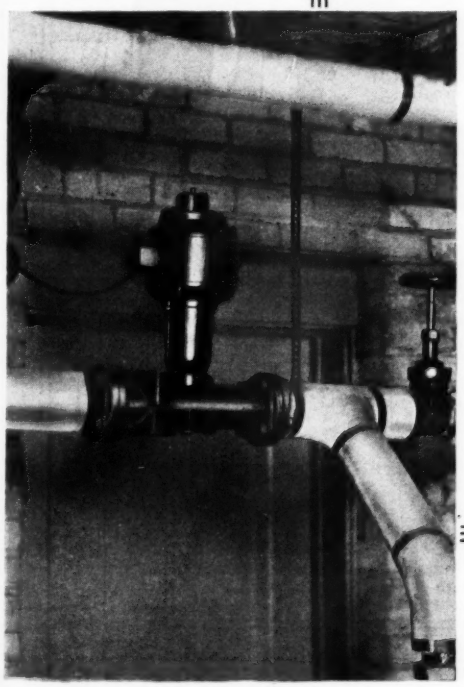
Jos. Davis, 2nd vice president of the chapter, presided. C. W. Farrar, chairman of the "National Committee to Increase Membership," gave an inspiring talk and appeal for a greater membership. L. A. Harding amplified Mr. Farrar's remarks with some well chosen ideas on how to increase the local and national membership. Fletcher Burke, chairman of the Chapter Membership Committee, also urged that greater efforts be put forth to bring new blood into the organization.

Mr. Donnelly of Syracuse was the principal speaker of the evening and his subject, "The New Era in Anthracite," was handled in a most interesting way. He brought out the fact that members of the Association of Anthracite Producers were exerting their energies in finding out the varied uses to which anthracite coal is put, and to find new uses for it. It is a problem of education, and the greatest problem is the house user. Mr. Donnelly thought that the A. S. H. & V. E. might well interest itself in the many complexities attendant on the use of coal. A general discussion followed, in which most of the members took part.

A nominating committee of past presidents was appointed to submit nominations for next year's officers.

The HYDROLATOR

Marks the End of Hot Water Circulation Troubles



No longer is there any excuse for a sluggish or inefficient hot water heating or domestic supply job. The HYDROLATOR will cure all types of "sick" 2-pipe hot water systems, whatever the cause.

Every new job, too, should have a HYDROLATOR. It will assure your customers more heat on less fuel, paying for itself in fuel savings within one or two years.

Write for Bulletin 729-H

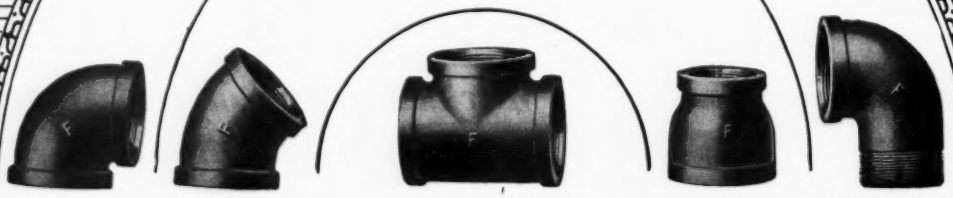
JANETTE MANUFACTURING CO.

Singer Bldg. 149 Broadway New York — 556 W. Monroe Street CHICAGO — Real Estate Trust Bldg. Philadelphia

A few good mid-western and southern Manufacturers' Agents' territories open.

FLAGG
BRASS FITTINGS

Air Tested!



FLAGG Flat Band Brass Fittings are made of red brass — like all FLAGG products they have the necessary qualities to withstand the most severe service. To make sure — each fitting is individually tested under water with air.

Write for our Brass Circular!

STANLEY G. FLAGG & CO., INC.
1421 Chestnut St.
PHILADELPHIA, PA.

Suggest Oil Heating Association for Canada

At the regular monthly meeting of the Montreal Oil Heating Association, held recently at Montreal, Canada, John T. Lewis, president, read a reply to a communication sent to Ottawa by the association suggesting that a Canadian national association be formed of all oil heating interests. The reply came from A. C. MacKenzie, secretary of the Ontario association, stating that his organization was in accord with the views of the Montreal body and that a joint meeting should be held in Ottawa in the near future.

◆

Incorporate New Firm in Florida

The Florida Sun Ray Water Heater Co. has been incorporated in Orlando, Fla., with a capital stock of $25,000, by L. C. Leedy and associates.

The Master Plumbers' Association of Scranton, Pa., has elected as officers for the 1929-30 season, John T. Decker, president; H. Ralph Leber, vice president, and William A. Schneider, secretary and treasurer.

Convention Dates

January 13, 14 and 15, 1930—PRESIDENTS' AND SECRETARIES' CONFERENCE—The eighth annual conference of the presidents and secretaries of associations in the plumbing and heating industry, to be held at the Congress hotel, Chicago, Ill.

January 14 and 15, 1930.—SOUTH DAKOTA—The annual convention of the South Dakota Retail Plumbers' Association, to be held at Rapid City, South Dakota. Convention headquarters at Alex Johnson hotel.

January 14, 15 and 16, 1930—WISCONSIN—The annual convention of the Wisconsin Master Plumbers' Association, to be held in Milwaukee, with headquarters at the Hotel Schroeder.

January 21, 22 and 23, 1930.—ILLINOIS—The annual convention of the Illinois Master Plumbers' Association, to be held at Rockford with headquarters at the Hotel Faust.

January 27-30, 1930.—A. S. H. V. E.—The thirty-sixth annual meeting of the American Society of Heating and Ventilating Engineers to be held at Philadelphia, Pa.

February 3 and 4, 1930.—WEST VIRGINIA—The annual convention of the West Virginia State Association of Master Plumbers to be held at Clarksburg.

February 4, 5 and 6, 1930.—OHIO—The annual convention of the Ohio State Association of Master Plumbers to be held at Springfield.

March 10, 11 and 12, 1930.—INDIANA—The thirty-fourth annual convention of the Indiana Society of Sanitary Engineers, to be held at Fort Wayne.

April 7 to 12, 1930.—AMERICAN OIL BURNER ASSOCIATION—The seventh annual convention and exposition of the American Oil Burner Association, to be held at the Stevens Hotel, Chicago, Ill.

May 5 and 6, 1930.—FLORIDA—The ninth annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at Bradenton.

May 19, 20 and 21, 1930—PENNSYLVANIA—The annual convention of the Pennsylvania Master Plumbers' Association, to be held at the Bellevue-Stratford hotel, Philadelphia.

June 24, 25 and 26, 1930.—N. A. M. P.—The forty-eighth annual convention of the National Association of Master Plumbers, at Boston, Mass. Sessions at Grand Hall of Mechanics Building. Headquarters at Statler Hotel.

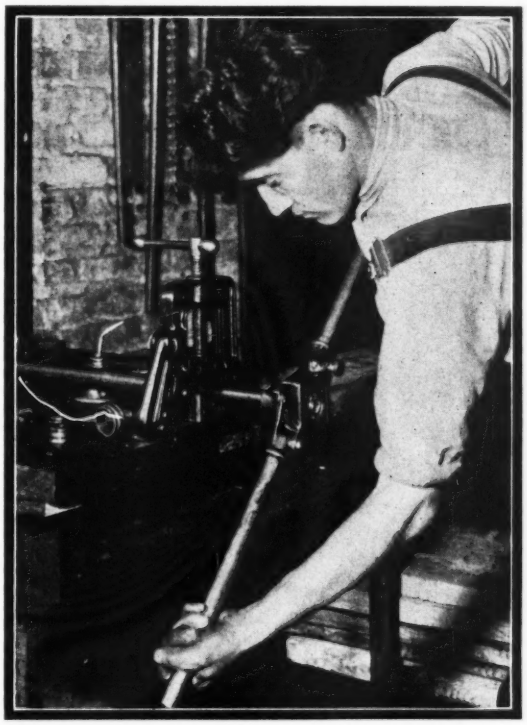
COMING TRADE EVENTS

December 2-7, 1929.—The seventh annual showing of the National Power and Mechanical Engineering Exposition, to be held at Grand Central Palace, New York City.

January 27, 28, 29, 30 and 31, 1930.—The International Heating and Ventilating Exposition, to be held at the Commercial Museum, Philadelphia, Pa.

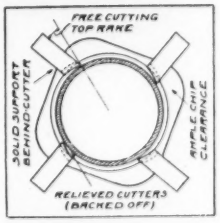
March 3-7, 1930.—The first showing of the National Industrial Exposition, to be held at the Hotel Stevens, Chicago.

June 23-27, 1930.—Exposition in connection with the annual convention of the National Association of Master Plumbers, in the Mechanics Building, Boston, Mass.



After Exhaustive Tests, they Produced a New and Better Pipe Die

After exhaustive tests of all types and makes, the master tool makers of Armstrong Bros. Tool Co. designed a new and better pipe die. This die embodies the knowledge gained thru over 37 years of specialization in metal cutting tools. It has "Backed-Off" Vanadium Tool Steel Cutters which are cast-welded into the die body. This process permits a design which gives greater chip clearance than any other die made. This pipe die is easy starting, cuts a smooth clean thread, will not jam and will give longer service.

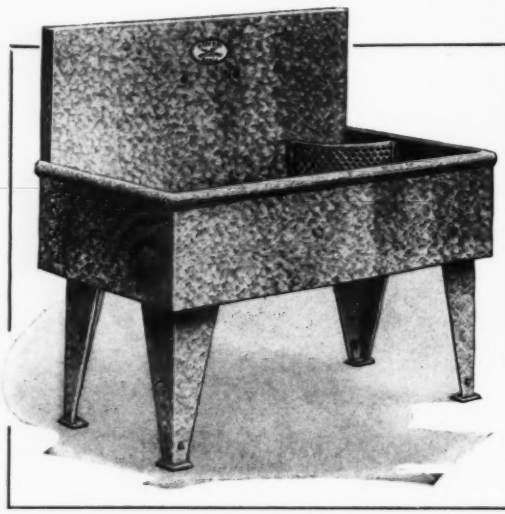


Write for Catalog P-10 describing a full line of improved pipe tools.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave., CHICAGO, U. S. A.

ARMSTRONG BROS.

KOVEN
Scullery Sinks



CARRIED IN

STOCK

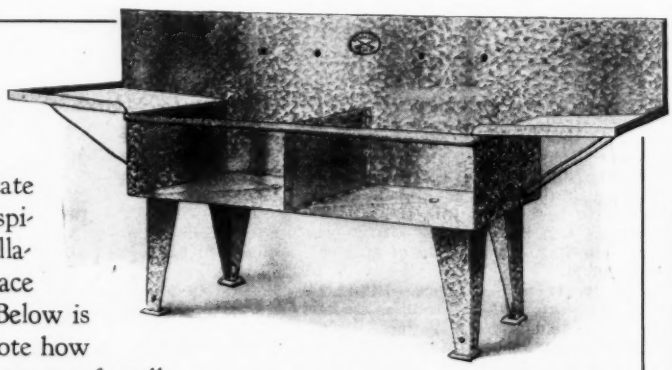
Single and double compartment sinks, made of best quality open hearth steel, and thoroughly galvanized, after fabrication, by the "hot dip" process.

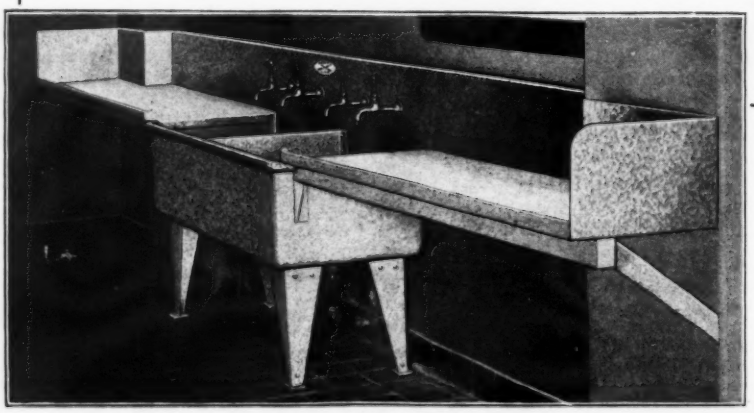
Detailed circular upon request.

MADE TO

Specification

We are especially equipped to fabricate sinks of steel or alloy metals, for hospitals, cafeterias, and other large installations where limitations of size and space must be taken into consideration. Below is a typical KOVEN installation. Note how drain boards are designed to fit contour of wall.



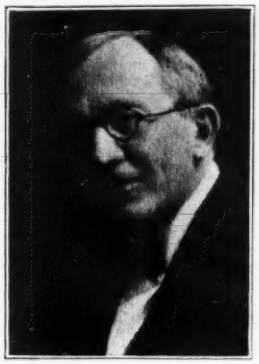


A new circular on KOVEN Scullery Sinks has just come off the press. Write for YOUR copy.

L. O. KOVEN & Brother
Incorporated
154 Ogden Ave.
Jersey City N. J.

Charles F. Hauss Leaves Japan for Amsterdam, Holland

Charles F. Hauss, who for eight years has been the Far Eastern representative of the American Radiator Co., New York City, has recently left Japan and joined the N. V. Radiatoren, H. M. I. J. in Amsterdam, Holland. Before going to the Far East, Mr. Hauss had served the American Radiator Co. as representative in nine different European countries.



Charles F. Hauss

Shortly before Mr. Hauss left Japan, a luncheon in his honor was held at the Imperial Hotel of Tokyo, with many prominent engineers present. Saito Shozo of the Saito Shozo Tokyo office, heating and ventilating engineers and importers, was chairman of the party and spoke in high praise of Mr. Hauss, voicing his regret and the regret of the gathering, at Mr. Hauss's departure.

The following men were present at the party given for Mr. Hauss: Y. Asai, engineer of army department; S. Chujo, architect (designer for N. Y. K. building and Kaijo building); Dr. R. Hirota, mechanical engineer (formerly of Takata & Co.); Dr. B. Mano, former president of Kyushu Imperial university; M. Midzushi, designer for Sone-Chujo architectural office; H. Oguri of Okura & Co.; T. Nagashima of Mitsubishi Shoji K. K.; K. Takemura, former works manager of South Manchuria railway K. K.; K. Yamazaki, engineer of former Takata & Co.; Y. Maeda, proprietor of Maeda Iron Works; G. Yamazaki, Sanki Engineering Co.; S. Yuda, of the bureau of smoke prevention and boiler inspection of the metropolitan police board; T. Uyenishi of Kenzai-sha, heating contractors; T. Uchimura, mechanical engineer and patent attorney; J. Kondo, architect (designer of the Tokyo Fraternity Memorial hospital); Dr. M. Kamo, professor of Tokyo Imperial university; J. W. Rust, architect; M. Thurm, heating engineer of Teten's office; J. P. Cosgrove of American Radiator Co., successor to Mr. Hauss; C. F. Hauss; and Saito Shozo, chairman of the party.

Saito Shozo

◆

Manufacturing Concern Chartered in Seattle

The Copper Radiator Corp. has been chartered in Seattle, Wash., with a capital stock of $500,000, to manufacture heating apparatus. The incorporators are George Bech, J. M. Lippert and associates, all of Seattle, Wash.

FIG 370, screwed, Jenkins Standard Bronze Globe Valves, recommended for lines ¼ inch to 3 inches carrying 125 pounds working steam pressure, 175 pounds water.

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80 White Street ..... New York, N. Y.
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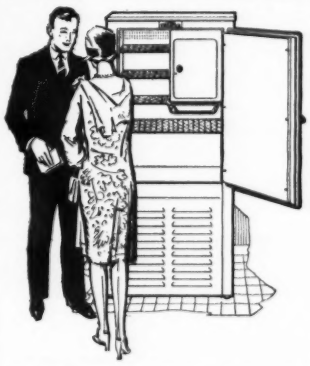
646 Washington Boulevard ..... Chicago, Ill.
JENKINS BROS., Ltd., Montreal, Can.; London, Eng.

Jenkins
VALVES
Since 1864



Complete

The Trupar line is complete and well balanced—contains residence models, apartment models, and commercial equipment, in a practical range of sizes. Cabinets available in a choice of several colors.

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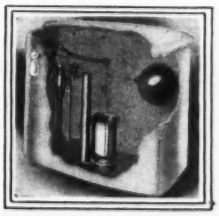
ELECTRIC REFRIGERATION

Is sold thru the plumber and plumbing supply jobber—the logical outlet—and many of the most prominent names in the Industry are handling the line.

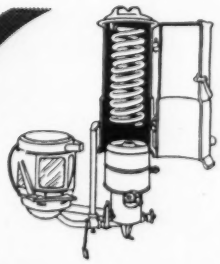
Trupar Mfg. Company
140 Davis Ave. Dayton, Ohio

CURTIN
TANK NOISELESS FITTINGS

A·F·CURTIN VALVE CO.



Medford, Mass.



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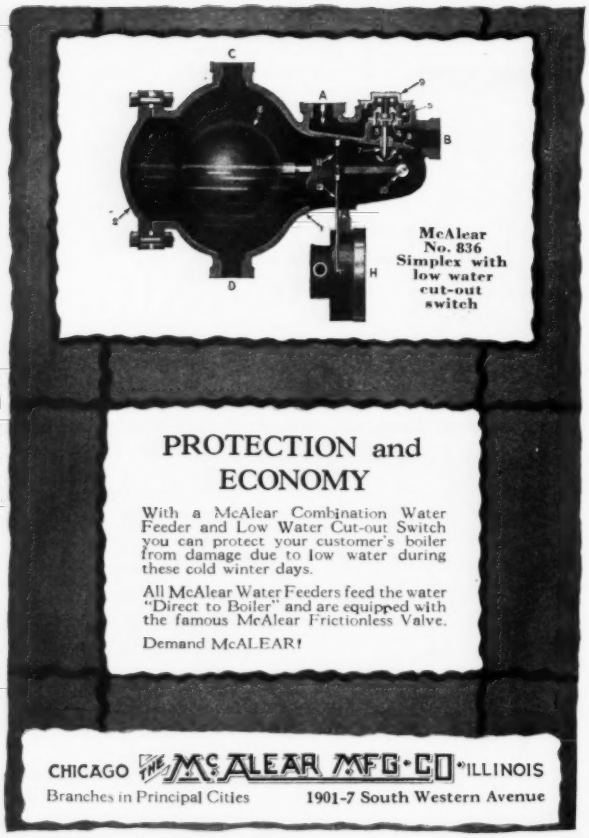
OHIO Kerosene HEATERS

Ohio Kerosene Heaters have a reputation to live up to . . . . .
And they always make good.

OHIO HEATER CO
Columbus, Ohio, U. S. A.


C
A
B
D
H
McAlear No. 836 Simplex with low water cut-out switch
PROTECTION and ECONOMY
With a McAlear Combination Water Feeder and Low Water Cut-out Switch you can protect your customer's boiler from damage due to low water during these cold winter days.
All McAlear Water Feeders feed the water "Direct to Boiler" and are equipped with the famous McAlear Frictionless Valve.
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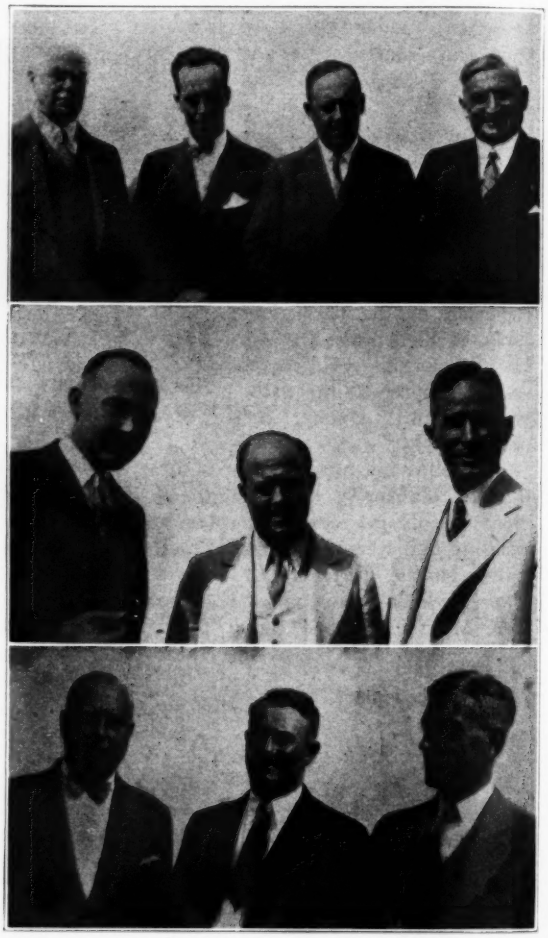
New Jersey Salesmen Hold Monthly Meeting

The New Jersey Chapter of Plumbing and Heating Salesmen, held its regular monthly meeting November 1 in the chapter rooms, 833 Broad street, Newark, N. J. Secretary William Cooper read a detailed report, submitted through National President W. W. Morgan, Philadelphia, Pa., of the Committee of Twenty-Five in



Top row: Francis J. Baker, president of Tay-Holbrook, Inc., San Francisco; F. A. Kales, Pacific Coast manager, Standard Sanitary Mfg. Co., San Francisco; George W. Manierre, president of the Western Supply Association, and president of Fitzpatrick & Locke Co., Los Angeles; Morris Stulsaft, vice president of Western Supply Association and president of M. Stulsaft Co., San Francisco. Middle row: S. S. Barrows of Dunham, Carrigan & Hayden Co., San Francisco; J. C. Bowles, Bowles Co. of Seattle; M. M. McElwaine, Seattle Plumbing Supply Co., Seattle. Bottom row: W. Allan Taylor, Wheeling Steel Corp.; Donald O'Hair of P. E. O'Hair & Co.; G. F. Emanuels of Republic Iron & Steel Co., all of San Francisco. Photos taken at the recent meeting of the Western Supply Association

which was outlined plans for future activities of the chapters. Included in these were subjects for monthly meetings throughout the year designed to offer the membership matters for discussion of an educational nature which will be beneficial to the industries as a whole.

President Edward M. Robinson, who presided, introduced the following new members whose applications have been approved: S. Waller of H. Miller Brass & Copper Co., Newark, N. J.; John Lawler of Montclair

(Continued on Page 135)

Advertising Is a Specialist's Job

THE man who laid out this ad is a specialist. He knows the printer's types by their first names. He knows how to make your eye travel to the precise point he wants it to travel. He knows how to take the copy for this ad and make its essential points stand out so that you will "get them" in a glance. He knew just how this ad was going to look in type before he gave it to the printer.

The man who wrote this copy is a specialist. People say that he knows all the parts of speech in the English language. He knows enough six-cylinder words to mix with his one-cylinder words so he has what is known in baseball as a "change of pace."

You are a specialist. You know how much radiation you will need to heat a room of a certain size, etc., and you know all about vents, and soil stacks and the other gadgets in plumbing installations.

The advertising specialists call you in when they want a plumbing or heating job they know will work. They figure, naturally, that you ought to call them in when you want an advertising job that will work.

So, in each issue of "Domestic Engineering" you find the Retail Advertising Service. It carries newspaper ads, sales letters, short publicity items, copy for circulars and suggestions for window displays, made up by the two specialists mentioned with the help of a third — the artist who makes the illustration.

The cost of that service is $4.20 for twelve weeks. In other words, we charge you 35 cents for the cut each week. We send you two new illustrations every other week and a reprint of the page. All you do is hand them to your local newspaper and your advertising job for the week is finished.

Here's the form that will give you the service of these specialists for the next twelve weeks. After that you'll never want to be without their help.

Tear out and mail this coupon—now!

DOMESTIC ENGINEERING,
1900 Prairie Ave., Chicago

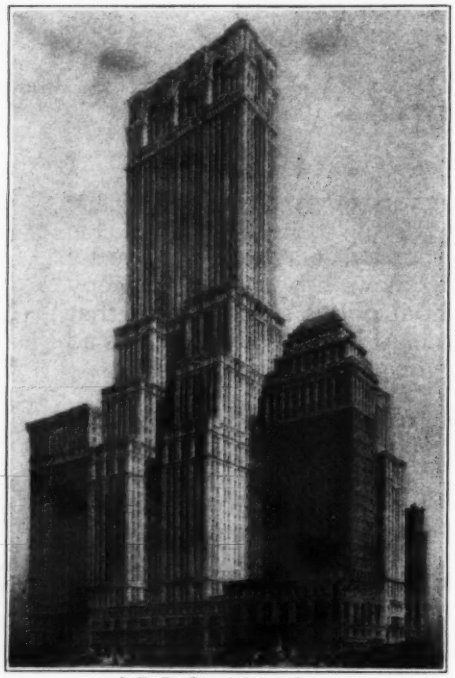
Please enter my order for three months' use of your Retail Advertising Service.

I'm going to advertise!

Name .....

City and State .....

SLOAN ROYAL-MARINE-GEM FLUSH VALVES

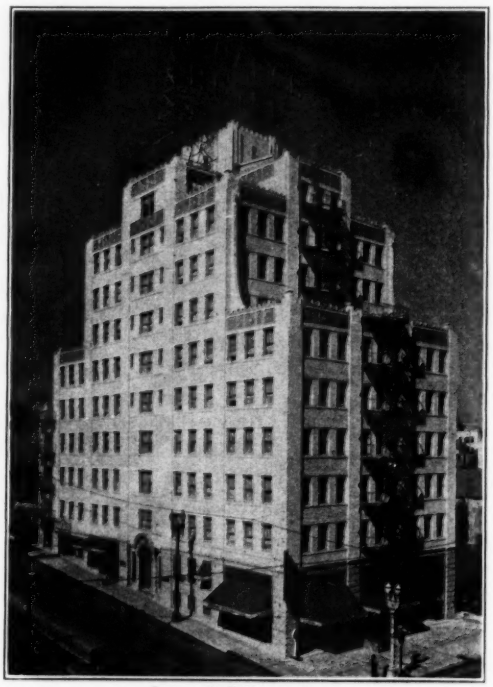


J. E. R. Carpenter, *Architect*
Clyde R. Place, *Consulting Mech. Eng.*
J. L. Murphy, Inc., *Plumbers*
E. Smolka Plumbing Supply Co., *Fixtures*

LINCOLN BUILDING, New York, N. Y.

Equipped throughout with

ROYAL FLUSH VALVES



Cramer & Wise, *Architects*
United Plumbing & Heating Co., *Plumbers*
California Pipe & Supply Co., *Fixtures*

MONARCH HOTEL, Los Angeles, Cal.

Equipped throughout with

MARINE FLUSH VALVES

C. Howard Crane, *Architect* Ralph P. Peckham, *Plumber*
Murray W. Sales & Co., *Fixtures*

ST. CLAIR TERRACE BUILDINGS, Detroit

Equipped throughout with

GEM FLUSH VALVES

SLOAN VALVE CO.—CHICAGO

Branches in All Principal Cities

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Consumption Requirements Are Less Regular

MOST reports from the large jobbing centers indicate that in the past fortnight a rather pronounced irregularity developed in the demand for plumbing and heating materials and volumes for most wholesalers experienced a set back in comparison with October and the early part of November. Plumbing materials, it seems, were the most affected by the let down-down in contractor consumption although heating goods, too, failed to move at the pace that sellers have come to expect at this season. The lightness of demand combined with the approach of inventory is making buyers for wholesale houses conservative in their ordering. As a result, new business reaching producers is usually for small quantities calling for immediate shipment, which ordinarily is granted. No changes have been reported in makers' published prices to wholesalers.

October shipments of enameled sanitary ware, as reported to the department of commerce by 22 manufacturers comprising practically the entire industry, totaled 284,961 pieces, as compared with 313,886 pieces in September and 350,293 pieces in October, 1928.——October shipments of porcelain plumbing fixtures, as reported to the department by nine manufacturers comprising the entire industry, were 10,802 pieces, as compared with 12,430 in September and 20,419 in October, 1928.——New orders for 1,712 steel boilers were placed in October, as reported to the department of commerce by 80 manufacturers comprising most of the leading firms in the industry, as compared with 1,910 boilers in September and 1,803 in October, 1928.

CENTRAL WEST

Contractor Demand Is Only "Fair"—

The volume of plumbing and heating business transacted in the Central West territory during the fortnight just passed was no better than "fair," according to most manufacturers and wholesalers interviewed. Contractor demand showed little if any change for the period in comparison with the earlier two weeks. Roughing-in commodities are moving very slowly at present and even finishing materials and boilers and radiators, which ordinarily are required in large volume by contractors at this time of year, are not enjoying the active turnover of a year ago at this time.

Buyers for wholesale houses are adhering strictly to their policy of purchasing only such material as is needed to take care of current needs and, consequently, manufacturers' salesmen find small-sized orders making up the majority of business reaching them.

Manufacturers of the various commodities covered by this report, have, in the majority of cases, adjusted their production so as to be in possession of well assorted stocks. Consequently, wholesalers experience little or no difficulty in securing quick service on order for fill-in quantities. No reports were received during the fortnight of any changes in manufacturers' published prices to wholesalers.

Soil Pipe

Manufacturers' representatives interviewed agree that current business in soil pipe is light. Foundries are operating at a curtailed production schedule, but stocks on hand at plants are sufficiently large so as to enable makers to take care of orders promptly. Wholesalers, generally, have fairly good-sized stocks and are not coming into the market for much soil pipe. Prices of manufacturers to wholesalers have not been changed.

Pipe—Steel and Wrought Iron

So far this year, according to manufacturers' representatives interviewed, the tonnage of wrought iron pipe moved into this district has compared quite favorably with that for the corresponding period of 1928. Current business is holding fairly well and wrought iron mills are taking care of business without delay. Steel pipe, according to most reports, moved at about the same pace in the last fortnight as during the preceding like period. Wholesalers are making no attempt to carry stocks other than of a size needed to take care of their current requirements and are depending upon mills for quick delivery service, which is ordinarily granted. Mills have not changed their prices to distributors on either steel or wrought iron pipe.

Fittings

There were no developments of any great moment in the fittings market during the past fortnight, at least as far as volume of business and prices are concerned. Wholesalers say that calls from contractors maintained about the same level as during the preceding report period. New business reaching manufacturers is not heavy as jobbers are ordering only when required to fill-in low spots in their inventories. Factories are generally shipping without delay.

Enameled Ware

The majority of wholesalers in this territory failed to note any noticeable change in the volume of enameled ware called for by master plumbers over the previous two-week period. Orders reaching makers continue to be small in size and producers are taking care of this business without delay. Prices from manufacturers to wholesalers have not been changed.

Pottery

Pottery moved at just about a "fair" pace during the two weeks covered

by this report, according to manufacturers and wholesalers interviewed, and little change is apparent in the volume of business compared with the preceding like period. Wholesalers as a general rule are holding down their inventories, depending on potters for quick service when staples are needed. Producers have not changed their published prices.

Plumbers' Brass Goods

Cast and tubular brass goods salesmen report a light volume of business for the past fortnight. Wholesalers in the majority of instances are well supplied with this material and are coming into the market only where shortages occur in certain items. Manufacturers are shipping promptly upon receipt of orders. There has been no change in the published prices of manufacturers.

Range Boilers

Wholesalers are buying range boilers in quantities commensurate with the immediate needs of their customers and as a general rule are holding their stocks at a minimum level. Reports from manufacturers and wholesalers indicate that range boiler demand during the fortnight just passed was closely comparable with that of the earlier two-week period. Makers have not changed their published prices and they are delivering without delay.

Boilers and Radiators

The first three weeks of November, according to some manufacturers, contributed only a fair volume of business in boilers and radiation. These same producers say that the above mentioned period failed by quite a substantial margin to equal the tonnage received during the same period of 1928. Factories have large enough stocks to take care of orders promptly. Makers have not changed their published prices to wholesalers and the market is reported firm.

NEW YORK

Some Decrease Is Felt In Volume—

The quickening in pace which was felt by wholesalers in this territory during October and the early part of November experienced some set-back in the last fortnight. The majority of wholesalers interviewed stated that the demand for heating materials is holding steady although the peak of the seasonal demand is past. Contractor's requirements for plumbing fixtures have fallen off considerably and following the trend for the year to date are considerably below those of a year ago. Furthermore, the approach of inventory is making itself felt in closer adherence to close range buying. In some quarters it is anticipated that December shipments may be ahead of those of a year ago in spite of the lower rate of construction, due to the fact that contractor's requirements are fairly constant and are promptly reflected in wholesalers' requisitions to maintain low stocks.

New construction contracted for during the month of October in the Metropolitan district of New York shows a decided increase of well over $19,000,000, when compared with the records for the preceding month, according to F. W. Dodge Corporation. Total construction amounted to $78,901,800 for the past month as against $58,086,000 for September of this year. Analysis of the October construction record showed that residential building maintains the lead over all other classes, being $39,091,000 or 50 per cent of the total. Commercial construction ranked second with a total of $12,355,500 or 16 per cent; educational buildings reached a total of $9,150,500, or 12 per cent; and public works and utilities had $9,108,400, or a little more than 11 per cent. The October contract total brought the amount of new building and engineering work started in the Metropolitan territory during the first ten months of this year up to $976,116,200 as compared with $1,317,786,800 for work started during the corresponding period of last year.

Collections are reported by wholesalers as being moderately satisfactory and that there has been some evidence during the past fortnight of money being available for builders and contractors and this is being reflected in the customers' accounts.

Soil Pipe

Wholesalers report that demand has been light during the past two weeks and after allowing for a seasonal slackening in this commodity the volume is not considered normal. Inventories at all points of distribution are low and makers report that there is no tendency on their part to accumulate stocks, and production has been closely geared to demand. There have been no changes in price by either manufacturers or wholesalers and no delays are experienced in obtaining shipments by contractors or wholesalers.

Pipe—Brass, Steel and Wrought Iron

It is reported by wholesalers that the turnover in these items has been relatively more favorable than in most other lines, owing to commercial and industrial requirements. There have been no changes in quotations by manufacturers or distributors and stocks are being maintained in a condition adequate to take care of current requirements promptly.

Fittings

The volume in brass fittings continues fairly satisfactory, according to several representative wholesalers, although the turnover in this division as a whole has shown a tendency to ease off with the passing of the peak of the demand for heating purposes. Specifications are frequent but are small in size, according to most makers. There have been no changes in price and shipments are prompt on staple items.

Enameled Ware

With the exception of one or two large projects the past fortnight has seen little inquiry for this commodity. It is considered probable by several wholesalers that while the demand for staple items during the balance of this month will be seasonably lower that colored ware will move well as the holiday season approaches. It is said that several prominent contractors are making a determined effort to interest their customers in material of this nature and some wholesalers have increased their requisitions to some extent with this in mind, as shipments are said to be delayed in some instances on colored ware. There have been no changes in quotations by either wholesalers or manufacturers and shipments, with the exceptions noted above, are reported prompt.

Pottery

Wholesalers are not carrying heavy inventories at this time and contractors' demand is reported as being light. Considerable attention is being devoted to specials by both contractors and wholesalers, and many factors in trade circles realizing the dearth of new business as a result of decreased construction are giving unusual attention to replacement work. Manufacturers state that specifications are, if anything, somewhat better than had been anticipated on staple items and there is good inquiry for specials. Shipments in most cases are promptly effected.

Plumbers' Brass Goods

Wholesalers' inventories in this commodity are reported by leading interests as being at a minimum. Specifications on plants are not heavy and quickly reflect contractors' requirements. Among manufacturers it is felt that requirements will be heavier the first of the coming year than they were last year, as it has been pointed

out that at that time many wholesalers had taken in large stocks of material in anticipation of an advance in the price of copper. Activity in radiator valves and other heating items has been somewhat more marked than was anticipated, although the business is said by several leading interests to be in no wise comparable with that of a year ago. There have been no changes in price by either manufacturers or distributors.

Range Boilers

The demand for range boilers has shown little change with regard to the trend since midsummer. Prices are reported as being firm among manufacturers and wholesalers and inventories are adequate for all requirements. Revisions in the price of storage tanks were made by two manufacturers during the past fortnight, giving effect to a list and discount method of quoting instead of the net which has prevailed hitherto.

Boilers and Radiators

The demand for heating equipment has been relatively favorable during this season and in fact until very recently had exceeded expectations. Requirements for replacements and improvements were substantial in several subdivisions of this territory. There is some discrepancy in reports from wholesalers, some stating that their business in heating materials has been better than that of a year ago. There have been no changes in quotations and inventories are reported as being moderate at all points of distribution.

MIDDLE ATLANTIC

Seasonal Recession Is Evident—

The major wholesale interest in this territory continues to be confined largely to heating materials. The past fortnight has not been especially productive for manufacturers of plumbing materials, the usual seasonal decrease in demand for these commodities having taken place. The curtailment of residential building during the year is also felt to have had a part in effecting present conditions. The brisk movements of enameled ware, pottery and other finishing materials noticeable in past weeks is not in evidence at this time. However, activity in the closing of contracts for the larger commercial operations and hospitals is manifested in this section, and a fair amount of this type of work is being started for this season of the year.

Manufacturers' representatives are sensing the approach of inventory time by the reticence of the majority of purchasing agents in making commitments. Distributors are adhering to the policy of small quantity orders to meet only current demands. Production is well sustained by producers and jobbers are sufficiently stocked to meet all their present demands.

The Alexander Hamilton Institute reports that the daily average of building contracts for October was 7 per cent lower than September and 26 per cent lower than October of last year, the slump throughout the year being confined chiefly to residential building, while for the first nine months contracts awarded for offices and factories showed an increase over last year. A conspicuous recovery in building activity is not an immediate prospect, but a favorable factor in the outlook for the curtailment of the downward trend is the lowering of interest rates, the report states.

The F. W. Dodge Corporation report of contracts awarded in the Middle Atlantic States for the 45th week gives a total figure of $9,522,400, while the total for the 46th week from November 9 to 15 was $12,013,100. In both instances the contracts for non-residential and public projects were far in excess of the totals for residential construction.

Soil Pipe

The seasonal decline in buying interest for soil pipe was noticeable in this section during the fortnight. Demand, while light, is up to the expectations of most producers, taking the past periods as a criterion and stocks are ample in all points of distribution, with no tendency on the part of either makers or wholesalers to have more soil pipe on hand than immediate demands require. Prices continue to remain on a firm basis and all re-ordering is handled without delay.

Pipe—Brass, Wrought Iron and Steel

With the approach of the inventory season, jobbers' purchasing agents are buying only such brass pipe as they are called upon to furnish their trade. The volume is not comparable to that of last month which was only a fair period in the opinion of makers' representatives. Wrought iron pipe is moving at a fair pace. Steel pipe is evidently required by master plumbers for re-installation work at this time as reports indicate that tonnages shipped during the fortnight were in excess of those delivered during midsummer. No word of any price changes have been received and deliveries are made by makers in a prompt manner.

Fittings

Manufacturers of cast iron and malleable fittings are not receiving the same amount of business they had on their books a few weeks back. Heating contractors still actively engaged in new and re-installation work are absorbing cast fittings in quantities sufficient to require wholesalers to make frequent replacements in their stocks. This helps appreciably to keep fitting volumes at a moderate level. Smaller size orders are the usual thing, close range buying on the part of the distributors prevailing. Shipments are effected promptly, and prices are at previously existing levels.

Enameled Ware

A seasonal slump has occurred in the enameled ware market commensurate with the decline in other finishing materials. While business is not as satisfactory as it was during the summer months, a fair volume is being consumed. Producers have ample quantities of fixtures in their warehouses, but distributors are not prone to place large quantity orders, as inventory approaches. Factories are shipping without delay and prices to jobbers have not been changed by the makers.

Pottery

Large building projects are still consuming a sizeable amount of pottery in this section, but a decline in the volume is quite noticeable. Recent weeks brought improvement to the pottery market when compared with the earlier part of the year. Curtailment of residential building has affected the turnover of the staple pieces of ware to a great extent, while the more special types of fixtures have experienced a demand commensurate with that of last year for this season. Potteries are able to meet all commitments in a reasonable time. Prices to wholesalers are the same.

Plumbers' Brass Goods

The current volume of business in both tubular and cast brass is reported by manufacturers' salesmen as being less than that of the same period a year ago. It is the consensus of opinion that copper at its present level is fairly well stabilized and buying is of the small variety. Distributors are holding normal stocks and as quantity is not expected they are adequate for present needs. No price changes have occurred and shipments from producers are characterized as prompt in all cases.

Range Boilers

Prices of range boilers remained firm in all quarters during the fortnight, and wholesalers and producers are amply supplied to meet master

plumbers' requirements. A fair amount of business exists, but the orders received by manufacturers fall short of 1928 figures. The demand for allied products and storage tanks has tended somewhat to fill the gap in the lessened demand for range boilers.

Boilers and Radiators

Boiler and radiator manufacturers are recipients of a substantial amount of orders at this time, as jobber interest centers mainly on these items. During the fortnight, the pace of demand was maintained at about an even level with October. A gradual increase in contractor demand was experienced from August up to early November. Heating contractors are still operating at a brisk pace, taxing wholesalers' inventories to a considerable extent. Producers are kept quite active meeting requirements but little difficulty is encountered in securing delivery. Prices are unchanged.

NEW ENGLAND

Buying Trend Is Irregular—

Commentators on the market situation in this territory, both from manufacturing and wholesaling standpoints, allow that some depreciation in their sales has taken place during the past fortnight. The natural seasonal decline of consumption requirements has occasioned some letting off in shipments from sources and distributing points, but up until the early part of November the steady trend of demand accounted for quite satisfactory shipments to the plumbing trade. Activities in the heating industry have advanced to the point which makers consider a peak level for the year. New installations and remodellings absorb boilers and radiators in amounts which tax shipping facilities.

Present speculative developments are practically of little concern but constructions of larger size, such as schools, hospitals and industrial buildings, hold the attentions of all engaged in the industry. A number of sizeable contract awards of good proportion were effected during the past fortnight and there still remain outstanding quotations by contractors, wholesalers and producers which total large and which are expected to actually develop before the first of the year. As is witnessed by statistics, the volume of new work reported in contemplation during the month of October totaled $37,632,300, an increase of 37 per cent over September.

Jobbers are not committing themselves much in advance of their immediate needs, for, while their inventories are sufficient for the present, they are becoming more and more cautious in purchasing lest the stock taking period finds unwarranted surpluses. Producers are well prepared to make deliveries as requested. No price changes of consequence were reported by makers or wholesalers during the period covered by this report.

Soil Pipe

Wholesalers report that their disposition of soil pipe have been appreciably reduced due to the seasonal letting off in roughing installations by master plumbers. Replacement demand from jobbers does not account for any large sized movements from foundries, yet makers' representatives report that tonnages for this season of the year meet with their expectations. Jobbers' stocks are generally well assorted and no difficulty is experienced in securing quick deliveries from sources in fill-in quantities. Manufacturers' prices remain unchanged.

Pipe—Brass, Steel and Wrought Iron

Mill representatives report somewhat of a dearth of carload orders of steel and wrought iron pipe. This is not unexpected, however, for distributors have been maintaining well-regulated stocks, especially in the case of steel pipe, to care for the extensive requirements of their heating trade. Inventory taking is uppermost in the minds of wholesalers and their racks are being kept at levels which are just proportionate with the rate of output. Both makers and jobbers state that their brass pipe shipments are of good seasonal dimensions. No delivery extensions are noted. Mill prices are firm and have not been changed by manufacturers.

Fittings

The call upon wholesalers for fittings has shown but little change over the past two weeks, it being closely aligned with movements into consumption of pipe. Cast iron commodities for heating installations are being purchased quite freely, distributors' active sales being reflected in the good receipts which makers report. As the end of the year approaches it is noted that jobbers' placements have been moderated to some extent and that they are buying only as dictated by immediate needs of their customers. Manufacturers are filling orders promptly and have effected no revisions in existing price sheets.

Enameled Ware

Even though speculative residential work has fallen off, there still obtains a fairly good demand for ware for larger sized developments. There are but very few carload orders reaching makers' hands, their volumes consisting of wholesalers' placements for stock bolstering of depleted items and special pieces for specific operations. Estimating departments of manufacturers and distributors continue to be actively engaged for there are still outstanding many jobs which will be awarded during the coming month. Shipments from the various sources of supply are unretarded. Makers' quotations as well as those of jobbers, continue unchanged.

Pottery

Staple ware orders from wholesalers have become less numerous during the past several weeks, according to the majority of reports received from pottery representatives. Demand, both present and potential, on the part of master plumbers for higher grade ware and special pieces, however, has upheld interests in such a way as to lend optimistic outlook for the coming months. Jobbers are not extending their inventories beyond their immediate needs, but are able to procure prompt shipments from manufacturing points when shortages in their stocks occur. The price situation, according to potters and distributors, is firm and unchanged.

Plumbers' Brass Goods

Representatives of cast and tubular brass goods manufacturers in this area express no great dissatisfaction over the pace at which business has held during the past month. Wholesalers have not shown inclination to augment their stocks but consistently good withdrawals by their customers have accounted for frequent replacement orders reaching makers' hands. Stocks at sources are such as to permit expeditious forwardings. Makers' prices continue to be of firm nature, no price changes attending.

Range Boilers

Contractors' purchases have considerably diminished as compared with those which were reported by wholesalers a month ago. Distributors are in possession of good stocks for their immediate needs but their orders placed with makers reflect aversion to increase, as inventory is uppermost in their thoughts. Factory prices are unchanged. Good delivery service is general.

Boilers and Radiators

Most makers seem to coincide in the opinion that the presently active demand for heating equipment will not be depreciated for some weeks to

come. Contractors are presently at the peak of their season and their orders represent large weekly disbursements from manufacturing and jobbing centers. The price situation, according to producers, continues firm and unchanged. With the exception of minor irregularities in shipments, occasioned by heavy demand, contractors experience no difficulty in securing material from jobbers when wanted.

SOUTHEAST

Business Is In Moderate Volume—

Activities in the various lines of plumbing and heating equipment are reported by most jobbers as moderately good, and holding at a "fair" seasonal level. The past two weeks showed little change in the disposition of the jobber to keep his stocks pared to meet the current demands of the trade. November opened with a brisk business, but this movement was retarded somewhat toward the latter part of the month. However, most sellers are of the opinion that November will compare favorably with October in gross sales. Construction volumes are slightly off with residence building at a low level.

The heating season is well under way and the appearance of cold weather in the Southeast should stimulate materially the sale of heating equipment, in the opinion of some sellers. The market tone is firm. No new price sheets have been issued and deliveries are reported as being made on schedule time.

Soil Pipe

Demand for soil pipe continued seasonally light for the past two weeks with no apparent change in the volume of sales over the same period of last month. Business is holding its own, according to most jobbers interviewed, and sales are measuring about up to expectations. Price quotations remained unchanged and deliveries are promptly made.

Pipe—Brass, Steel and Wrought Iron

Nothing new developed in the steel and wrought iron pipe markets in the Atlanta territory since our last report and business seems to be moving along at about the same rate which has prevailed for the past thirty days. Brass pipe sales were reported to be slightly below the level reached last month. Movement in wrought iron was reported to be satisfactory. Jobbers have ample stocks on hand to care for the requirements of the contractors and no delays in filling orders were reported. Mill price sheets have not been changed.

Fittings

Demand for brass and malleable fittings was reported as moderately good for the season of the year. The market is steady and holding at the current price sheets of the sellers. Most jobbers report a normal business with a gradual lessening in the size of orders toward the end of the month. Wholesalers have a good assortment of stocks in their bins. No delays in deliveries have been reported.

Enameled Ware

Enameled ware business in the Atlanta area continued at a normal, steady pace, and most jobbers report a satisfactory volume of sales. Finishing work is on the increase, and reinstallation work has kept contractors fairly busy. Prices have been unchanged and deliveries are regular.

Pottery

Jobbers are maintaining stocks only sufficient to supply the current requirements of the contractors. Sales

The Stock Market

Range for Week Ending November 23, 1929†

Par Value	1929 High	1929 Low		*	Weekly High	Weekly Low	Weekly Close
NP	223⅜	77	Air Reduction Sales Co	A	135½	97½	132½
NP	55⅜	28	American Rad. & Stand. San. Corp	A	36	32⅛	36
25	144⅝	60	American Rolling Mills Co	A	83¼	73¼	83¾
50	140	70	Anaconda Copper Mining Co	A	86¼	79¾	80⅞
NP	62	35	Bastian-Blessing Co	C	42	38	39
NP	140¾	78¼	Bethlehem Steel Co., Com	A	93¼	85	91
100	128	116⅝	Bethlehem Steel Co., pfd	A	123	118½	122
NP	55¼	16¼	Brunswick-Balke-Collender Co	A	28	22¼	27
NP	192⅞	50	A. M. Byers Co., com	A & E	75½	58½	73⅞
100	121¼	105	A. M. Byers Co., pfd	A & E	109⅞	109	109
100	127½	118	Century Electric Co., com	F	118	118	118
50	4¾	2	Chicago Nipple Mfg. Co., "A"	B	3	3	3
50	1½	1	Chicago Nipple Mfg. Co., "B"	B	1	1	1
25	48	42	Crane Co., com	C	44	44	44
100	119	112	Crane Co., pfd	C	114	114	114
20	21	11¼	Eagle-Picher Lead Co	H	14¼	12½	13½
NP	35	11	Fairbanks Co., pfd	A	18⅝	18⅝	18⅝
NP	54⅞	29¾	Fairbanks, Morse & Co., com	A	38	34½	37
100	110⅞	103	Fairbanks, Morse & Co., pfd	A	103½	103	103½
NP	24¾	12	Greenfield Tap & Die Corp	B	13¼	13	13
NP	38	23	Iron Fireman Mfg. Co	C	26¼	25⅝	26
NP	242¾	90	Johns-Manville Corp., com	A	125⅞	109	121½
100	123	118	Johns-Manville Corp., pfd	A	121½	120	120
100	126	117	Jones & Laughlin, pfd	A & E	119	118	119
NP	123¼	59	Minneapolis-Honeywell Reg. Co., com	A	71	63	71
100	161	142½	Minneapolis-Honeywell Reg. Co., pfd	A	161	161	161
NP	75	48	Modine Mfg. Co	B & C	55	50	55
NP	55⅛	21	Motor Wheel Corp	A	29	26	26
NP	67½	30	F. E. Myers & Bro Co., com	A	41¾	38	41
100	105	101½	F. E. Myers & Bro. Co., pfd	G	102⅛	101½	102⅛
100	210	129⅛	National Lead Co., com	A	150	136	150
100	141½	138	National Lead Co., pfd. "A"	A	139	138	139
100	122	116	National Lead Co., pfd. "B"	A	116	116	116
NP	17	2	National Radiator Corp., com	A	3¾	3½	3½
NP	41	6	National Radiator Corp., pfd	A	7½	6½	6⅛
5	31	23	Herman Nelson Corp	B	26⅛	23½	25
NP	92	71	Ohio Brass Co., "B"	B & G	71	71	71
NP	54⅞	25	Republic Brass Corp	A	32½	28¼	31⅛
NP	111	75	Republic Brass Corp., "A"	A	78½	78½	78½
NP	19⅜	2⅛	Richmond Radiator Co., com	B	3	3	3
NP	36½	9	Richmond Radiator Co., pfd	B	10	9	9
NP	44½	30	Ruud Mfg. Co	C	30	30	30
NP	52¾	15	Spang, Chalfant & Co., com	A	22⅞	20	22⅞
100	97	89	Spang, Chalfant & Co., pfd	A	90	89	90
NP	39½	20	Time-O-Stat Controls Co., "A"	C	27	25	27
NP	140	60	Union Carbide & Carbon Corp	A	82½	70¼	80
20	55⅞	12	U. S. Cast Iron P. & F. Co., com	A	21	17	19⅞
NP	19	15	U. S. Cast Iron P. & F. Co., 1st pfd	A	16⅛	15½	16⅛
NP	20	18½	U. S. Cast Iron P. & F. Co., 2nd pfd	A	19	18½	19
NP	62¼	35	U. S. Radiator Corp., com	B & D	45	37	45
100	100	100	U. S. Radiator Corp., pfd	D	100	100	100
NP	65	15	U. S. Rubber Co., com	A	30¾	25	29¼
100	92½	40⅛	U. S. Rubber Co., pfd	A	56½	46½	54⅛
100	261¾	150	U. S. Steel Corp., com	A	171⅞	159¾	167
100	144¼	137	U. S. Steel Corp., pfd	A	140⅛	138	140¼
NP	22½	3	Universal Pipe & Radiator Co	A	4⅛	3¾	4
NP	49½	22	Walworth Co	A	31¾	25⅛	30⅞
NP	35	10	Wayne Co., com	B & C	12	10	11
NP	49	28	Wayne Co., pfd	B & C	31	29⅛	30½
100	110	93	Wheeling Steel Corp., com	B	110	108	110
100	135½	131½	Wheeling Steel Corp., pfd. "A"	B	133	133	133
NP	29¾	16	Williams Oil-O-Matic Htg. Corp	C	16	16	16
NP	143	91	Youngstown Sheet & Tube Co	A	108	104	108

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

†If there is no trading during the current week, range represents last week recorded.

The Metal Market

	Nov. 26	Average Oct., 1929	Average Aug., 1929	Average 1928
PIG IRON—				
No. 2 foundry, Chicago	$20.00	$20.00	$20.00	$18.54
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.90c	1.95c	1.95c	1.87c
*Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.35c	2.35c	2.35c	2.03c
Black sheets, No. 24, Pittsburgh, per lb.	2.75c	2.80c	2.85c	2.75c
Galvanized sheets, No. 24, Pittsburgh, per lb.	3.50c	3.50c	3.55c	3.50c
TIN—				
Straits tin	40c			
LEAD—				
Chicago	6.25c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	15½c	Copper, light	12¼c
Block tin	36½c	Copper, uncrucibled wire	14 c
Brass, light	6½c	Faucets and valves	8½c
Brass, heavy mixed	7¾c	Lead, heavy	5½c
Brass, red	11 c	Solder Joints	8½c
Copper, crucible	14½c		

NOTE: Prices are those quoted on Tuesday of this week.
* Comparisons are with old blue annealed base, No. 10.

in pottery were reported as slightly below the level reached last month. Business started off rather good for the first half of November, but showed weakness in the latter part of the month. Shipments are made with regularity and no price change has occurred.

Plumbers' Brass Goods

Most jobbers report a moderate amount of business in the various brass goods lines, although business has not come quite up to the expectations made by some sellers in September and October. Most jobbers are keeping good stocks on hand but are not ordering from the makers in as large a volume as heretofore. No price change developed and shipments are being made without delay.

Range Boilers

Jobbers are rather cautious in placing orders with makers for range boilers, and are holding their stocks to a minimum. Sales, while reported fairly good in some instances, are generally light throughout the territory. Business has been rather spotty, with a few spurts here and there. Deliveries have been prompt, and the price situation remains firm.

Boilers and Radiators

Wholesalers state that sales have been fairly active in boilers and radiators, with a satisfactory business throughout the entire Atlanta area. Heating contractors are fairly actively engaged. Stocks are of sufficient quantity to supply current demands. No new price sheets have been issued.

PACIFIC COAST

Business Holds At Even Keel—

Coast business showed little change during the past fortnight and continues to be moderately active with the demand better in some sections than in others. Approaching inventory is causing distributors to restrict their purchases to immediate needs only. However, there are ample stocks of merchandise in distributors' hands and little if any delay is experienced by the trade in obtaining prompt delivery of its needs. Distributors' prices to the trade, as a whole, are holding firm.

Soil Pipe

Buying by most of the trade continues to be for current needs only which at present are not heavy, and the total tonnage moving from jobbers' stocks is only of moderate volume. Distributors are carrying stocks sufficient to take care of the trade's anticipated needs and re-ordering only to sort-up stocks. Prices by all concerned remain unchanged.

Pipe—Steel and Wrought Iron

Both steel and wrought iron pipe continue to move in moderate quantity with the trade generally purchasing for current needs only. Distributors of these commodities are carrying good stocks. Prices by all concerned remain unchanged.

Fittings

Little change is noted in the demand for cast iron screwed, malleable and drainage fittings which continue to move in moderate volume, the trade seeming to purchase only in quantities sufficient for their immediate needs. Distributors as a rule have well balanced stocks and can also secure prompt shipment from manufacturing sources. During the past week most Coast manufacturers advanced their prices on drainage fittings to a level close to those prevailing in other sections. These new prices are being reflected in the distributors' quotations to their customers.

Enameled Ware

There is nothing new in the demand for enameled ware, which continues to be maintained in a moderate volume. The trade continues to follow its policy of purchasing only such ware as is required for immediate installations and there are few inquiries out for future requirements. Distributors are carrying stocks sufficient to take care of the trade's anticipated needs for the next few months and Coast factories are also in a position to make early shipment of all classes of ware. Prices remain unchanged.

Pottery

The volume of pottery being used in this market at present is not heavy and jobbers are carrying stocks consistent with the trade's present needs. Prompt shipment can also be secured from Coast manufacturing plants. Prices remain unchanged.

Plumbers' Brass Goods

The demand for plumbers' brass goods, as a whole, is being maintained in a fairly satisfactory volume, which shows little change during the past fortnight. Distributors are carrying stocks sufficient to take care of the trade's needs without delay and are reordering in about the same volume as sales. Distributors' prices continue to vary in the different jobbing centers and are more firm in some than in others.

Range Boilers

A well sustained although not heavy demand for range boilers continues, which shows little change from week to week. Distributors generally are carrying stocks sufficient to take care of the trade's needs without delay and continue to replace merchandise in about the same volume as sales. Prices remain unchanged.

◆

Plans to Increase Production

The Young Radiator Co., Racine, Wis., according to a recent announcement by F. M. Young, president, has plans under way to enlarge its manufacturing possibilities through the addition of additional machinery.

Development League Holds Educational Meeting

The Plumbing and Heating Development League held the first of the educational meetings scheduled for the season, November 22, in the Public Ledger building, Philadelphia, Pa. Dr. F. W. Cawl, head of the sales promotion department of the Philadelphia Public Ledger, along with a number of others prominent in that same line of effort, presented pertinent suggestions on how the merchandising of plumbing and heating materials can be effectively accomplished.

C. W. Wanger, of Woodward-Wanger Co., Philadelphia, as chairman, after explaining the purposes of the meeting, presented C. J. MacGuffin, credit manager of the Philadelphia branch of Crane Co., who spoke on "The Vital Subject of Credit." Speaking of primitive times, Mr. MacGuffin described how, before coins came into existence, transactions were largely based on credit extension and this method now, as then, continues to be a predominant factor in business. Concerning the modern method of deciding whether or not, and how much, credit is to be extended, he enumerated capital, collateral, capacity and character as the chief factors which are used as a basis. Mr. MacGuffin stated that 92 per cent of the people engaged in business are honest but added that many, through poor business methods, are not as sound credit risks as they might be. A further thought, contributed by the speaker, was that business conditions will not improve until debtors meet their various obligations honestly, courageously and truthfully.

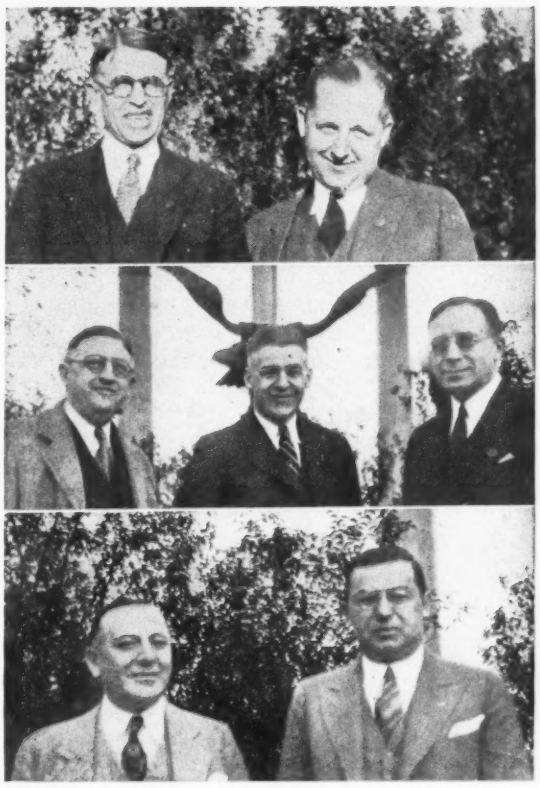
Howard S. Thrasher, of the Development League staff, explained the significance of the league slogan, "We Keep Faith." He said that it is vitally necessary for manufacturers to have faith in master plumbers and heating contractors and for these latter to have complete confidence in the former. Taking up the matter of overhead in business he further said, "Without a good set of books no man in business can truthfully know his overhead and in my opinion the bookkeeping system supplied by the Plumbing and Heating Industries Bureau is the best." Mr. Thrasher charged the average plumber of today with not knowing accurately his overhead.

John R. Hartman, manager of the league, speaking next, defined successful selling as the act of creating in a prospect's mind, a desire so strong to possess the product offered for sale that resisting is impossible. The manner in which this is accomplished, he said, depends largely on the item offered for sale, and in the case of plumbing and heating materials, the strong appeal lies in selling the idea of greater enjoyment in life.

A practical sales demonstration was presented when the son of Mr. Wanger, assuming the position of a master plumber, sold a set of bathroom accessories, including shower curtain, stool, soap dish, paper rack and towel bar, to a woman who had come into his shop to price a chromium finished sink faucet, which on seeing it in the window she had thought of as a present to her sister. Playing up the Christmas spirit, the delight her sister would experience at receiving the modern appliances for her bathroom, and the great satisfaction to be derived through giving something different that could be used daily, Mr. Wanger finally made the sale.

Doctor Cawl then offered constructive criticism by drawing attention to the fact that Mr. Wanger had drawn a visual picture of the sister's pleasure at receiving a useful and practical present. Another thing that aided in successfully concluding the sale, the Doctor said, was the placing of the articles in the prospect's hands, permitting her to feel and examine them closely. This, he further explained, helps in creating the desire of possession. Doctor Cawl, in pointing out faults in the effort, called attention to the fact that Mr. Wanger moved too fast with the prospect, not permitting her to discuss the objects. By way of conclusion he advised a demonstration with various items at each meeting as a means of education in merchandising.

W. W. Morgan, president of the National Association of Plumbing and Heating Salesmen, who was accompanied by a large delegation of members of the Plumbsteam Club, offered the aid of the salesmen of his organization to plumbing and heating contractors in the promotion of sales.



Top picture: William C. Kingman of Canfield Supply Co., Kingston, N. Y.; Alonzo F. Ruch of Interstate Plumbing Supply Co., Inc., Albany, N. Y. Middle picture: Ben F. Stolinsky of Montgomery Plumbing Supply Co., Jersey City, N. J.; A. W. Callahan of Thomas Trant & Bros., Hartford, Conn.; and E. Keane of Walworth Co. Bottom picture: H. N. Sklar and Louis Berglas of M. P. Berglas Mfg. Co. Photos taken at the recent meeting of the Eastern Supply Association

◆

Will Represent Flemm Lead Co.

P. C. Abbott & Company, manufacturers' representatives, have been appointed by the Flemm Lead Co., Inc., Long Island City, N. Y., as representatives in Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, New Orleans, La., and West Virginia.

Plumbsteam Club Holds November Meeting

The regular monthly meeting of the Plumbsteam Club of Philadelphia was held Friday, November 15, at the Sylvania hotel, in that city.

After the dinner, President William Morgan introduced John R. Hartman, campaign manager of the Plumbing and Heating Development League of Philadelphia, who invited the salesmen to attend the first educational meeting of the league to be held Friday, November 22. Mr. Hartman told the salesmen the part they should take in the program and asked their cooperation. The speaker talked briefly on a survey made by the league, which, he said, indicated that the public is not plumbing and heating conscious.

As a part of the regular business the various committee reports were read. President Morgan read the report of the committee of twenty-five, which was adopted, and the secretary was authorized to send copies to each member.

After the meeting the members enjoyed seeing the moving pictures taken by DOMESTIC ENGINEERING at the last three conventions of the National Association of Plumbing and Heating Salesmen.

◆

Crane Co. Entertains Atlanta Masters

The Crane Co. branch of Atlanta, Ga., entertained the members of the Master Plumbers' Association of Atlanta, at a luncheon at the Henry Grady hotel on Wednesday, November 20. A feature of the affair was the showing of a picture taken at the enameled ware plant of the Crane Co. in Chattanooga, Tenn., depicting all the stages in the manufacture of enameled ware. The meeting was in charge of R. J. Spencer and E. L. Pugh of the Atlanta office of Crane Co.

◆

Invites Prospective Members to Attend Meetings

The Heating and Ventilating Salesmen's Club of Los Angeles, Calif., has issued a letter to all prospective members inviting them to attend the monthly meetings of the club under the classification of associate members.

The purpose of this, according to J. W. Crawford, secretary treasurer, is to induce salesmen of heating and ventilating appliances to come to the club meetings, where they may become better acquainted with each other, in the hope that ultimately they may become active members of the organization.

◆

Declares Dividends

The American Radiator and Standard Sanitary Corp., New York City, has declared a dividend of $1.75 per share on preferred stock payable November 30 to stockholders of record at the close of business November 15. A dividend of .375 per share on the common stock has been declared payable December 31 to stockholders of record on December 11. These are the third quarterly dividends.

◆

Manufacturers Exhibit at Home Exposition

The National Hotel Exposition held during the week of November 11 to 15 in Grand Central Palace, New York City, included displays of several manufacturers of plumbing materials. Among these, Crane Co., Chicago, Ill., presented a complete bathroom in apple green with citrous yellow fixtures. Josam-Marsh Interceptor Division, New York City, maintained a booth in which was displayed its line of grease interceptors in addition to other special devices of its manufacture. Para Rubber Co., Newark, N. J., displayed the shower curtains made in its plant. Sanitary-Dash Corp., New York City, maintained a booth in which were exhibited the shower curtains which it produces.

◆

American Radiator Co. Broadcasts Opera

The first of a select group of the operas composed by Puccini, "Madame Butterfly" was presented by the American Radiator and Standard Sanitary Corp., New York City, on November 16 over the nation-wide network of the National Broadcasting Co. This broadcast, which marked the first time in the history of radio that an opera by this composer was sung over the air, is to be followed on the third Saturday of each of the next five months with "La Boheme," "Tosca," "Manon Lescaut," "The Girl of the Golden West," and "Gianni Schicchi."

The cast was headed by Mme. Frances Alda in the role of "Butterfly," with Merle Alcock, contralto, as Suziki; Alfred O'Shea, tenor, as Lieutenant Pinkerton, and Pasquale Amato, baritone, as Consul Sharpless. Deems Taylor was the "narrator," reading the story linking together the scenes. The orchestra was directed by Genaro Papi, former director of Italian operas at the Metropolitan. Just before and immediately following the performance Frank I. Fletcher drew the attention of the audience in a manner that was in keeping with the dignity of the occasion to the comfort, healthfulness and pride in possession that is to be derived through replacing antiquated bathrooms and heating apparatus with modern sanitary fixtures and up-to-date heating plants.

◆

Utah Announces Convention Plans

The Utah State Association of Sanitary and Heating Engineers' semi-annual convention was announced to take place during the early part of December, by State President A. H. Higham at the November meeting of the Salt Lake City Association of Sanitary and Heating Engineers. The convention, which will be held in Salt Lake City, will have, as principal speaker for the occasion, Charles M. Swinnerton of Los Angeles, Calif., national director. The officers of the Utah association, in addition to President Higham, are: Alex Mortensen, vice president; Ross Dudley, secretary; Joseph F. Carthey, treasurer; Henry G. Blumenthal, V. W. Palmer, A. E. Hurd, Mr. Carthey and Mr. Higham, board of directors.

◆

Hollywood Club Chooses Officers

The Hollywood Merchant Plumbers' Club, Hollywood, Calif., has elected as officers for the 1929-30 season Frank T. Hassey as president; Joseph Newberry, vice president; John W. Fox, secretary; and Preston Freeman as treasurer.

(Continued from Page 124)

Plumbing Supply Co., Montclair, N. J.; J. A. Connors of John Uhler, manufacturers' agent, New York City; H. M. Fleming of United-Oberndorf Co., Cleveland, O.; J. S. Witemeyer of Johns-Manville Corp., New York City; Joseph P. Brown of DOMESTIC ENGINEERING and John R. Lewis of the Plumbers Trade Journal Publishing Co.

President Robinson discussed a number of the things that the newly formed contact committee working in conjunction with the master plumber, the wholesaler and the manufacturer expects to accomplish. Following this an open discussion and reports from the various committees were heard. Joseph P. Brown was appointed chairman of the publicity committee. The next meeting is scheduled for December 6.

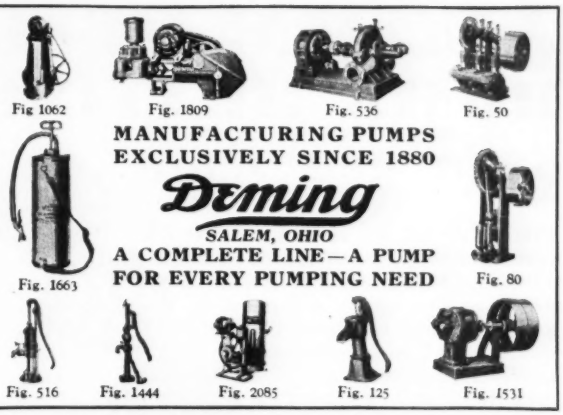
◆

Chicago Oil Burner Association Holds Meeting

The Chicago Oil Burner Association held its monthly luncheon meeting November 12 at the Maryland hotel, Chicago, Ill., with an attendance of thirty-four members and guests. A. D. King, secretary of the Burning Oil Distributors Association, read a paper on the subject of co-operation of trade associations, and discussed his qualifications for the secretaryship of the Chicago Oil Burner Association, in view of the acceptance of C. W. Presdee's resignation from that position.

An announcement was made that the city of Chicago is working on an ordinance which will make compulsory the installation of stoker firing for oil fired equipment in all boilers over 20 h. p. The committee working on this ordinance includes Dr. Arnold H. Kegel, Prof. G. F. Gebhardt of Armour Institute of Technology and Charles J. Lehn of the Marshall Field Estate.

Top row: Messrs. Bradley, Buebaker and Graham, Annabel Sanford. Middle row: Miss Jeane Elliott, Mrs. H. E. Klein, Mrs. M. Martin, Mrs. O. Sapper and Mrs. C. H. Elliott. Bottom row: Mrs. Shetler, Mrs. Banke and Mrs. Keller. Photos taken at the recent convention of the Uniflow Mfg Co., Erie, Pa.



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Stop pipe thread leaks with SMOOTH-ON No. 1 in a

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QUICK, easy, cheap Holds for the life of the line—any pressure, any temperature, iron, brass, or copper pipe. Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.

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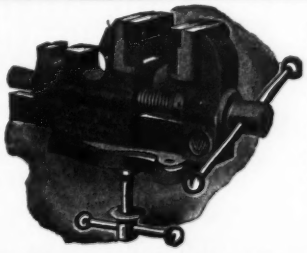
The Vanderman Combination Bench Pipe Vise has removable steel jaws that will not "bugger".



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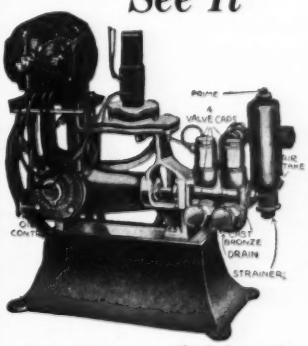

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THOUSANDS of HOME OWNERS voice their praises of this MODERN AUTOMATIC SYSTEM. It sounds not one—but many new notes in home heating comfort. It harmonizes ALL the requirements for heating perfection—whatever the scale of living. For mansion or cottage, and for any heating plant—warm air, steam, vapor or hot water. Also ideal for hot water supply.

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Compact, sturdy and marvelously efficient. Easy to install, moderate in price. Distributors and Dealers in over 300 cities. Write for interesting booklet.

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The Electric Furnace-Man

PATENTED AUTOMATIC COAL BURNER

Product of

DOMESTIC STOKER CO. : 7 Dey St., New York

Physics of Plumbing

(Continued from Page 66)

that the acceleration continually decreases as the velocity increases, until it is reduced to zero when the maximum or critical velocity is reached. In order to reach or make use of the maximum carrying capacity of a vertical pipe, it would be necessary to distribute inlets along the pipe at short intervals and to introduce water through these inlets at volume rates sufficient to keep the pipe full as the velocity increases. This condition is partially met in plumbing installations by branches connected at different floor levels. However, the distance between the inlets is usually a story height, and the volume rates of discharge from its branches are not regular. The practical carrying capacity of a plumbing stack is therefore some fraction of its maximum capacity when flowing full.

Water introduced into a 3-inch stack at one level through Y inlets at the rate of 100 gallons per minute will almost fill the stack at that level. At a point 10 ft. below the first inlet, the stream will have attained a velocity such that the stack will be flowing less than one-third full, and it will readily receive an equal volume rate of flow from another inlet without overcharging the stack. Again at a point 10 ft. below this second inlet, the stream will have attained a velocity such that the stack is about one-half full, where it will again take the flow from a third branch inlet. It is apparent that the practical or usable capacity of a plumbing stack depends on its length or height and on the number and distribution of the branches along the stack. We lack data for determining just what these usable capacities are. We have tested the practicability of using a 3-inch stack up to 275 gallons per minute, which is about one-fifth of its maximum capacity if the stack could be kept flowing full. There is no apparent reason for the capacities of larger stacks not being used proportionately.

Capacities of Sloping Drains

There are certain conditions applying to horizontal branches that do not apply to vertical drains and stacks. When water is discharged into a stack from a lateral branch it immediately accelerates and soon reaches a high velocity. Water discharged into a horizontal drain increases in velocity slowly, and may enter the pipe at a velocity higher than the critical velocity of the pipe, in which case it decreases to the critical velocity for steady flow. The entrance velocity of the discharge from water closets may be higher than the critical velocity of the drain, in which case the holding or storage capacity of the branch drain becomes an important factor.

The relation of storage to the capacity of a drain can probably be best explained by means of a concrete example. The computed carrying capacity of a 3-inch cast iron drain, laid with a fall of ¼-inch per ft., is 51 gallons per minute. Allowing 5 gallons per flush for each water closet and allowing for each water closet to be flushed on the average of once in 5 minutes, the mean rate of flow per water closet during the time that the fixtures are used at that rate will be one gallon per minute. If there were storage capacity in the drain sufficient to hold the discharges as they come, a 3-inch drain with the carrying capacity of 51 gallons per minute would carry 51 water closets. None of us believe

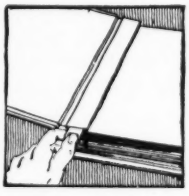
THE HANDY SPEEDLOK
Domestic Engineering Catalog Binder

Especially designed for the standardized catalog page adopted by the plumbing and heating industries

The SPEEDLOK is a quick operating catalog binder designed to fit reprints of catalog pages in "Domestic Engineering Plumbing and Heating Catalog" as well as all other catalog pages that conform to the standards adopted by the plumbing and heating industries.

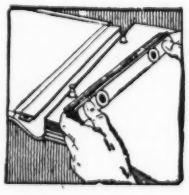
Easy and speedy operation are special features of this binder. A slight pull on the concealed bar under the top cover unlocks mechanism when sheets are inserted. Equipped with bar for removing sheets when changes are made.

Minimum capacity 1¼ inches. By simply unscrewing extension posts capacity can be extended to 2¼ inches. Works perfectly for all requirements—either a few sheets or filled to capacity.



Covers are bound in heavy black Levant Grained Fabricoid, semi-flexible, very durable and attractive looking.

To unlock Binder—Pull out slide bar in top wing. Top cover will immediately fall back.



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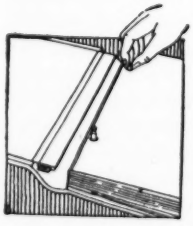

To increase or to decrease the capacity of the binder is a simple operation. The two posts are so constructed that they can be easily raised or lowered to meet the height requirements. Binder posts can be extended from 1¼ inches to 2¼ inches.

Price of binder—$3.00. Prices on quantities on application.

For Plumbing and Heating Contractors—

Many master plumbers and steamfitters assemble working catalogs from standardized catalog sheets filed in binders.

Domestic Engineering is in position to furnish without charge, upon request, loose sheets—which are reprints from catalog pages appearing in "Domestic Engineering Plumbing and Heating Catalog"— of several hundred manufacturers. They are standard catalog page size — 10⅝ x 8½ inches — are printed on a good grade of light paper and punched according to the standard adopted by the plumbing and heating industries. These sheets fit the SPEEDLOK binder.

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The loose-leaf system reduces to the minimum the bulk and weight of catalog material required by the salesman. Only matter actually required for selling purposes need be carried in the binder. It does away with the necessity of carrying entire catalogs, booklets and circulars of various sizes and shapes.

Salesmen using the loose-leaf system have a great advantage over men not using this equipment—to say nothing of the added convenience, time and labor-saving features.

With a modernly equipped loose-leaf binder, the salesman can present his products in a more comprehensive manner than it is possible to accomplish by the old methods. Having all his material up to date in compact form and easily available, he can show latest specifications, answer questions or quote prices more readily.

When orders for binders are accompanied by requests for catalog reprints the binders will be equipped with the sheets desired and shipped complete.

Write for full details regarding loose sheets and binders.

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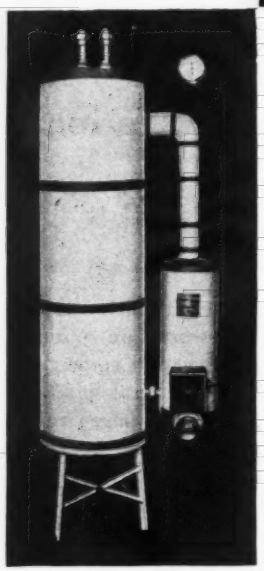
1900 Prairie Avenue (*Catalog Department*) **Chicago, Illinois**

SEMI-AUTOMATIC SIDE ARM HEATER

The most economical type to use. Heats only the amount of water wanted. Write for further information.

Electric Wheels QUALITY

WATER HEATER



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Every home beyond a suitable gas supply needs an electric water heater.

They give continuous service for years without care or attention and without dirt, odor or fumes.

They give an even finer service than gas, and will bring you new friends and new profits.

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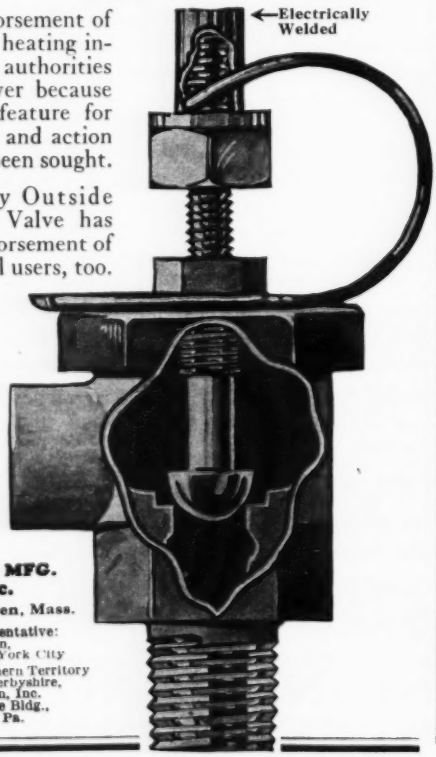
DONNELLY OUTSIDE SPRING RELIEF VALVE

It has the endorsement of plumbing and heating inspectors and authorities the country over because it has every feature for positive safety and action that has ever been sought.

The Donnelly Outside Spring Relief Valve has the hearty endorsement of contractors and users, too.

Easy to install—easy to adjust and, because of its reliability, easy to sell.



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Philadelphia, Pa.

that that number of water closets will operate successfully on a 3-inch drain. The average rate of discharge from a water closet during the flush is about 30 gallons per minute, with a maximum rate during the peak of the siphon action of about 45 gallons per minute. This rate of discharge is approaching the carrying capacity rate of the drain.

We have tested the capacity of the 3-inch drain. Three water closets, spaced 30 inches apart, were connected by 3-inch lead bends to a 3-inch cast iron drain laid with a fall of ¼ inch per ft. All three of the water closets would flush freely at the same time. The flush of one laundry tray added to that of the three water closets gave a distinctly sluggish flush, indicating that three water closets is the approximate capacity load for a 3-inch drain in that position.

The holding capacities of horizontal drains are proportional to the square of the diameter times the length. When the holding capacity becomes sufficient to take a single flush of all the fixtures on the drain, the extent to which it can be used is limited only by its carrying capacity and the restriction of holding capacity disappears. The number of fixtures permitted may then be based on the mean rate of flow from the fixtures and the carrying capacity of the drain.

Capacity of Vent Pipes

Differences in the air pressure in different parts of a plumbing system are produced by the flow of water in a partially filled stack and its branches. Unless provision is made for the flow of air from the points of higher pressure to the points of lower pressure, differences in pressure sufficient to force air through the trap seals will be developed in the branch drains. If the pressure in the branch is higher than atmospheric pressure, the tendency is to force air from the branch into the building. If the pressure in the branch is lower than atmospheric pressure, the tendency is to draw air into the branch. The former is generally referred to in plumbing parlance as "back pressure" and the latter as "suction."

Ordinary P- or S-traps will usually withstand a suction, measured in inches of water, equal to the seal depth before air passes through the trap into the drain, and will withstand a back pressure of double that before air is forced through the trap from the branch. Back pressures are developed where water is being retarded or where air is trapped between two discharges and are usually manifested near the base of the system. Suction pressures are developed where water is being accelerated and sometimes in fixture branches by the siphon action of the branch.

We shall have time for only a brief discussion of these phenomena and will attempt only to point out some of the pertinent facts and relations concerning them.

The changes of pressure which are most widely distributed in a plumbing system are produced by the flow of water in stacks past the branch inlets. Air is drawn from such branches by the stream of water, reducing the pressure in the branch. Reduced pressures are also produced in the stack behind an accelerating stream of water. Complete venting of the stack and its branches is necessary to protect the trap seals from these effects.

There is obviously a relation connecting the size of the stack, the volume, velocity, and acceleration of the

stream of water and the volume rate at which air is drawn from the branches. I believe it is possible to discover this relation experimentally and to obtain data from which the proper sizes of vent pipes may be computed, not only for main vents and vent stacks, but also for branch vents.

Plumbing May Be Placed on Scientific Basis

If the physical laws governing the flow of air can be correlated with those governing the flow of water in plumbing systems, plumbing construction may be placed on a scientific basis comparable to that of other building construction.

Scientific knowledge is especially needed for designing the plumbing for large buildings. There is no real reason except the lack of fundamental knowledge why the sanitary engineer should not have as much freedom in the design of the plumbing of a 50-story building as the architect has in the design of the frame work of the building. Under existing practices, the design of the plumbing system is practically fixed, so far as pipe sizes are concerned, by the local plumbing code requirements. Code requirements are usually, if not always, set to meet the most exacting conditions as to occupancy, and use, of fixtures. There is no distinction, for example, between a public toilet room and a hotel private bathroom plumbing installation so far as code requirements in pipe sizes are concerned. The difference in the loads from the same number of fixtures or fixture units is obvious. The result of this situation is that pipes one or two sizes larger than needed are required by law and installed in many buildings, granting that the requirements are correct in some codes, but this is not true of all codes, since plumbing codes in different states and in different cities of the same state frequently differ materially.

I have introduced this discussion because it is a situation that will be difficult to remedy without the full cooperation of our plumbing inspectors, plumbing contractors, master and journeyman plumbers, with our sanitary engineers. There has been some progress toward uniform plumbing regulations through the influence of the Recommended Plumbing Code, which we believe represents a long step toward requirements based on sound principles. However, even this code is not claimed by its authors to be more than a compilation of the best information now available. Further progress in the application of scientific principles to plumbing construction will be made and it is to be expected that plumbing laws will be revised from time to time to keep pace with that progress. You will hear later of difficulties met in the progress toward uniform plumbing regulations. It may be better for all concerned that there are conventions and trade practices to overcome, and that progress can come but slowly. Revolutionary changes would hardly be good business in an industry as large as the plumbing industry. The workmen are trained in, and the manufacturers are equipped for supplying the trade according to the present order of things. Radical and abrupt changes in requirements for pipe sizes, the form of fittings, etc., would probably disrupt both the manufacturing and building industry to a noticeable degree, when gradual changes would not. For these reasons we may expect to see innovations come about gradually and with some opposition.

We have obtained some data for 3-inch soil stacks

Air-Tight Steel Tank Co.
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TANKS FOR: High pressure gas and air storage—Pneumatic water systems—Gasoline and oil storage—Oil burning equipment—Open top—Welded. ATSCO Genuine Copper Brazed tanks for high pressure—the tightest, safest, strongest tank it is possible to construct by any known process. A.S.M.E. code tanks.

SIMPLIFIED VAPOR HEAT

THE Hutchison Vapor System is economically and simply constructed. Four Special Appliances are all that are needed. All the rest of the material may be taken from stock. Investigate this new easy way to increase your heating job profits.

Write for details.

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HUTCHISON SYSTEM

All Lead-Copper-Galvanized Iron

SIMPLEX AND JUNIOR FLASHINGS FOR EVERY ROOF CAN BE HAD IN EACH OF THE ABOVE METALS.

Write for prices and full information on the easily installed, durable SIMPLEX and JUNIOR Flashings.

SIMPLEX MFG. CO.
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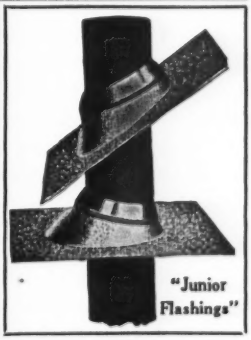
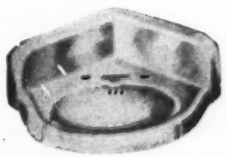

"Junior Flashings"

JONES



For the extra lavatory or any place where space is restricted, this Corner Bowl is recommended. Easy to rough-in and very durable.

Write for complete catalog.

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BALTIMORE :: MARYLAND

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. . . *a key to* Bigger Profits!

TRAVELING over the country, you find case after case where Wholesalers of plumbing and heating supplies are tapping profitable new territory as a result of the ability of General Motors Trucks to make time under heavy loads.

This unusual work-ability, wholesale men tell you, adds 10 to 35 miles to the area over which they make fast, dependable deliveries direct to the job . . . *at less actual cost.*

For in addition to the famed operating economy of General Motors Trucks, inbuilt ruggedness in every detail of construction keeps them on the job day in and day out, and *year in and year out.*

The extra margins of strength in the rugged chassis, and in the strong factory-built bodies are put there to meet the sway and strain imposed by heavy loads, loads that may include, for example, bundles of 21-foot pipes, a bathroom outfit, a boiler and possibly even some radiation.

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GENERAL MOTORS TRUCK COMPANY, Pontiac, Mich. (*Subsidiary of* Yellow Truck & Coach Mfg. Co.)
GENERAL MOTORS TRUCKS, YELLOW CABS and COACHES
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ALWAYS INVESTIGATE WHAT GENERAL MOTORS HAS BEFORE YOU BUY

THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

John A. Quinn Recovering from Brief Illness

John A. Quinn, president of the National Association of Master Plumbers, is reported greatly improved after a heavy cold, which confined him to his home during the week of November 18.

◆

Dates Set for Presidents' and Secretaries' Meeting

The Plumbing and Heating Industries Bureau announces that the dates for the 8th annual conference of the presidents and secretaries of associations in the industry will be January 13, 14 and 15. Meetings will be held in the Congress Hotel, Chicago.

While the conference is primarily intended for presidents and secretaries, other association members will be welcome.

On the first day, the officers of the Heating and Piping Contractors National Association and of the National Association of Master Plumbers will meet separately. On the second and third days of the conference, joint meetings will be held.

◆

Pennsylvania Sets Convention Date

The Pennsylvania State Master Plumbers' Association has decided upon May 19, 20 and 21 as the dates on which its convention is to be held next year at the Bellevue-Stratford hotel, Philadelphia, Pa. Plans for a highly instructive meeting are already going forward under the direction of George F. Uber, general chairman. Mr. Uber is assisted by James F. Soehle, secretary, and George Moeller, treasurer. The Women's Auxiliary of the Philadelphia Master Plumbers' Association has begun laying plans to entertain the women attending the convention.

◆

New Jersey Board of Directors Meet

The board of directors of the New Jersey State Association of Master Plumbers, meeting on November 14 in the rooms of the Orange association, Orange, N. J., heard William F. Weber, past president of the National Association of Plumbing and Heating Salesmen, present his plan for the establishment of a council to supervise business conduct in the plumbing and heating industries throughout the state of New Jersey. The proposal, as Mr. Weber outlined it, in offering a method of closer coordination of the principal factors in the industries, provides that each association select five men to sit in council. Discussions followed and the matter is to be taken up by the various local organizations of master plumbers.

A letter from Thomas A. Edison was read, which came in response to the congratulatory telegram sent by the state association on the occasion of the recent celebration of the birth of the incandescent lamp. The letter expressed the deep appreciation of Mr. Edison that the master plumbers of his own state should so express their good wishes.

The next meeting is scheduled for December 5 at the Walt Whitman hotel, Camden, N. J., when the result of the referendum vote on the increase of the per capita

Well-Lighted Showroom in Westerly, R. I.

THE illustration herewith pictorializes a plan of showroom layout which gives the prospective buyer a quicker conception of the effect that may be achieved through the installation of new fixtures. This display room is maintained by F. W. Harvey at 14 Liberty street, Westerly, R. I.

tax will be made known. The city in which the 1930 convention is to be held will also be announced.

◆

Cincinnati Association Elects Officers

The Master Plumbers' Association of Cincinnati, Ohio, held its annual election of officers November 9, at the Cincinnati club. Thomas J. Dwyer was elected president; E. B. Kleine, vice president; Edward Frank, treasurer; William C. Tillett, secretary; and Val Reigers, sergeant-at-arms. The board of directors consists of William A. Harlow, John Doherty and Andrew J. Murphy.

Following the election, the annual banquet was held in the banquet hall of the club. Mr. Frank, chairman of the entertainment committee, made a brief address, speaking of the desire for closer co-operation of the various branches of the industry, and concluded by introducing Mr. Tillett as toastmaster for the evening.

The principal speaker of the evening was former Judge George E. Mills, who gave an excellent talk on the "Functions of Law and the Courts." Others who spoke during the evening were President Dwyer, Vice President Kleine, Mr. Murphy and David C. Lindsay, secretary-manager of the Cincinnati association. George J. Jones of Crane Co. made a few timely remarks on behalf of the wholesale houses, outlining their policy of co-operation with the association members and contractors in general, and suggested that representatives of the various groups might do well to get together more often.

At the close of the evening, the toastmaster called on Harry G. Franklin, who spoke of the service rendered to the association by President Dwyer during the past year, and presented him with a watch as a token of esteem and appreciation of his efforts.

Representatives of wholesale concerns present, included B. J. Toerner, Wolff Co.; R. H. Kieserling, Mutual Mfg. Co.; Charles Bird, Laib Co., Inc.; George J. Jones, Crane Co.; M. Ferrick, John Douglas Co.; John G. Murdock, Jr., Murdock Mfg. & Supply Co.; Joseph Wilson of Lawson-Darrock Co.

California Federation Increases Membership

The Federation of Merchant Plumbers' Associations of Southern California held its monthly meeting on November 16 at the Vista del Arroyo hotel, Pasadena, with an attendance of 460 members and guests. At this meeting three new local associations were admitted to membership in the federation. The new associations added were Santa Ana, Imperial Valley and Whittier.

This interest in the federation inspired the organization to attempt an intensive drive for membership during the coming month, and most of the time of the business meeting was spent in discussing ways and means of perfecting this plan. It was finally decided to have the president of every local association throughout Southern California, appoint a committee of four, which would spend a certain number of days in attempting to interest the merchant plumbers within its particular district in the matter of joining the local organization. Thus the membership of the federation and state association would be automatically increased.

The next meeting of the federation will be held on the evening of December 14 at East Gate, Calif., and the January meeting will be held at El Centro, in the Imperial Valley.

◆

Norfolk Association Holds Monthly Meeting

The Heating and Piping Contractors Norfolk Association, Norfolk, Va., held its regular monthly meeting in the association offices November 5. A motion was passed during the meeting that a certification fee must accompany plans when presented for checking. Those in attendance were President Charles Petersen, C. J. Montagna, V. R. Stell, R. D. Duell, J. J. Shanahan, R. A. Emanuelson, A. R. Thompson and Mr. Ellington.

◆

Harrisburg Masters Hear Merchandising Talk

The Master Plumbers' Association of Harrisburg, Pa., in the first meeting of the fall and winter season, heard an illuminating talk on the "Merchandising of Heat," given by W. A. Murphy, eastern manager of McDonnell & Miller Co. of Chicago, Ill.

Members of the Standardization Committee, N. A. M. P.

Joseph Hayes

E. B. Kleine

Jere L. Murphy

George H. Drake

R. T. Rock

Massachusetts Sanitary Club Holds Annual Dinner

The Massachusetts Sanitary club held its annual meeting and dinner, Wednesday evening, November 13, at the Boston Chamber of Commerce, Boston, Mass. Immediately following the dinner a brief business meeting was held, with President Wallace T. Wordell of Taunton, Mass., presiding.

Joseph Dervan, chairman of the nominating committee, read the recommendations of his committee for the officers and board of drectors for the ensuing year.

James G. Gillespie of Boston, was elected president; William Weis of Standard Sanitary Mfg. Co., first vice president; Frank W. Hubbard of W. B. Hubbard & Sons Co., second vice president; Richard T. Thatcher of Fairhaven, Mass., third vice president; Joseph A. Maynard of Boston Brass Co., secretary; and J. Preston Perham of West Roxbury, treasurer.

Picture taken at annual dinner of Massachusetts Sanitary Club

The board of directors consists of Joseph A. Maynard; William Weis of Standard Sanitary Mfg. Co.; John Nichol of Riverside Boiler Works, Inc.; Frank W. Hubbard; Frank Monroe of Monroe Co.; William Bennett of Somerville Iron Works; Charles

The DUBÉ Garbage Burning Water Heater

For Greater Satisfaction---

THERE are no wasted heat units where the Dubé Garbage Burning Water Heater is used. Reference to the illustration will show that even the hot smoke passes through the storage tank to the stack and every particle of the heat is consumed by the water in the tank.

Dubé Systems have for years been the favorite with leading architects, plumbing and heating contractors and users.

You will want Dubé profit and your customer will appreciate Dubé quality and efficiency during years of uninterrupted service.

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WARNOCK
TRIPLE WEAR WRENCHES

HERE'S the wrench that takes hold with the same pep and the same grip when it's old as when it's new. The Warnock Triple Wear Wrench is going to be a big time and temper saver for you. *From your jobber or direct.*

WARNOCK MFG. CO., Worcester, Mass.

It's a "Real Relief Valve" if the phosphor bronze spring is on the outside where it can never come in contact with the water. It will always be sure to give complete and unfailing protection.

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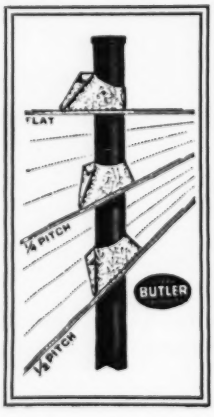
Ask your jobber and write us for catalog #34.

Instantly Adjustable

No matter what the pitch of the roof—from flat to half-pitch — the Overton Roof Flashing will fit with the least time and labor.

For extra heavy or standard soil pipe. Your jobber can supply you. Order Overtons today.



BUTLER MFG. CO.
Minneapolis Minnesota

Rosenwald; Wallace T. Wordell; James G. Gillespie; J. Preston Perham, George Ryan, Lynn; Charles D. Kieser, Newton; Richard T. Thatcher; Franklin E. Darling, Fall River, and R. A. LaCentra, Boston.

Joseph A. Maynard, secretary of the Sanitary club, and president of the Eastern Supply Association, reviewed, for the benefit of the guests and members present, the work he has outlined for the supply association for the coming year. He was followed by J. Preston Perham, treasurer, who read the financial report for the year, which was unanimously accepted. A recommendation that the club give the sum of $2,000 to support the program of the 1930 Boston national convention, was also approved at this time.

James G. Gillespie briefly outlined the national association's plans for the coming convention, and discussed the work that has been done by the national convention committee, headed by P. W. Donoghue of Boston. Mr. Wordell, the outgoing president, took the opportunity to thank the officers and members of the Massachusetts Sanitary club for the faithful co-operation given him during his term.

Daniel L. Hanson followed Mr. Wordell, giving his report as chairman of the committee on public comfort stations. Mr. Hanson expressed his gratification at the manner in which the members of the committee were working together. The committee consists of Chairman Hanson, who has charge of the publicity, John McAuliffe, J. Mullen, William Nelligan and John Nagle.

President Wordell next introduced the principal speaker of the evening, No Yong Park, a Chinese humorist, known as the Oriental Mark Twain, who is also a student of international affairs. No Yong Park, while entertaining the gathering with his Oriental wit, enlightened them as to the cause of the Far East problems. He also discussed the advancement his country is making in plumbing and heating methods.

◆

Philadelphia Masters Hear President Quinn

John A. Quinn, president of the National Association of Master Plumbers, speaking on "How You Should Conduct Your Business" at the monthly meeting of the Philadelphia, Pa., Master Plumbers' Association on November 7, in the rooms of the association, 922 North Broad street, stressed the fact that many master plumbers throughout the country are paying too little attention to the developments within the industry, which carry with them a demoralizing effect. President Quinn warned his colleagues to exercise greater care in every day business, and work to offset these contingencies, especially where credits are involved. He also pointed out that continued negligence on the part of master plumbers will ultimately be the cause of closing businesses that, if properly conducted, would prosper.

Maney J. Feeney, president of the Philadelphia association, and national secretary, spoke on the efforts that are being made by himself and other local members to effect an increase in the salaries of inspectors in the Philadelphia bureau of sanitation and house drainage of the department of health.

H. & P. Contractors Establish Educational Department

The Heating and Piping Contractors National Association has recently established an educational department for the further service of its members. The national association has obtained the services of S. Lewis Land as head of this department. Mr. Land, who was formerly in charge of the educational department of the Plumbing and Heating Industries Bureau, Chicago, has made a special study of vocational educational problems, and is also familiar with the problems of the heating industry. This department has been made possible largely through the financial aid of the Linde Air Products Co., New York City, and the Air Reduction Sales Co., New York City.

S. Lewis Land

The major interest of the educational department, during its first year, will be the preparation and production of the welding manual, for which the committee on welding has been gathering data during the greater part of the past twelve months.

Walter Klie of Cleveland, Ohio, president of the Heating and Piping Contractors National Association, in discussing this new project, said in part: "The inauguration of an educational department is another splendid step forward in extending the usefulness and service of our national association."

Frank Howard of Boston, Mass., vice president of the association, said: "We are enabled to take this step at this time through the liberal contributions of the dealers in pipe welding equipment, who realize that our association can carry on general educational work in this field more effectively than could they individually or collectively."

John H. Zink of Baltimore, Md., chairman of the committee on welding, and newly elected member of the board of directors, thinks that "The establishment of such a department by our association is another timely and constructive effort to give our members a real personal service."

The new educational department will be at the service of the heating industry after December 1, at 50 Union Square, East, New York, N. Y.

◆

Louisville Masters Hear Sales Talk

A large number of master plumbers of Louisville, Ky., recently were entertained at an open house arranged by the Kentucky division of the Troop Water Heater Co. of Pittsburgh, Pa. J. A. Cissell, manager of the Troop company's Kentucky division, in his address to the master plumbers, urged that they make a stronger effort to complete their sales without calling upon the manufacturer for assistance. He contended that, in calling for outside aid, the merchant plumber often brought on a situation that resulted in a diminution of his own profits.

General Contractor Architect Heating Contractor Financier

No Sir, — there are no difficult positions for Welding

The General Contractor: Morgan, you say it is possible to do welding anywhere on the job. How about those connections that are in difficult positions—up against a wall, ceiling or floor? Is it possible to do them with the ordinary torch?

Welding Against a Wall

The Heating Contractor: Absolutely. Difficult positions are no handicap to good welding, especially if a REGO Outfit is used. A welder can do equally good work in one place as another.

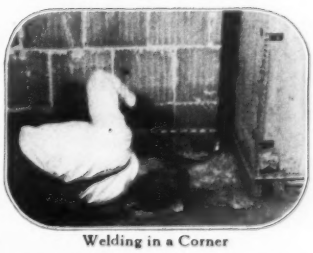
My operators are constantly doing work which, to the casual observer, might seem impossible. Yet, they do those jobs and my time costs are no greater than for straight, open work.

Welding Overhead

The Architect: A welding torch, then, is not a cumbersome instrument?

The Heating Contractor: We use REGO outfits exclusively, and, far from being cumbersome, they have been designed and built to handle easily.

Our operators tell me that in using a REGO torch, you can put your whole thought and skill on the weld itself—you can forget the torch — just as a sculptor forgets his chisel.



Welding in a Corner

Let us send you the full information on pipe welding—Rego pipe welding at once.

Write for details of Rego Welding NOW!

The BASTIAN - BLESSING CO.

254 E. Ontario St. Chicago, Illinois

Specify
and install for every acid waste line acid-proof Duriron drain pipe, as it *alone* fills the bill for safe and lasting corrosive drainage.
And in every installation of Duriron pipe there is a better profit for the Plumber
Cooperation and sales help if and when you want it.
Complete stocks always.
The Duriron Company, Dayton, Ohio
DURIRON
FOR ACID SERVICE

New York Chapter of A. S. H. V. E. Holds Meeting

The New York Chapter of the American Society of Heating & Ventilating Engineers held its regular monthly meeting November 18 at the Building Trades club, New York City. Louis T. M. Ralston was the speaker of the evening and described to the 120 members and guests present the heating problems in connection with the construction of the Chrysler building of New York City. The address given by Mr. Ralston, who was the consulting engineer on the structure, together with a resumé of the discussion which followed, will appear in a future issue of DOMESTIC ENGINEERING.

William R. Driscoll stated that he was surprised at the large amount of radiation which was indicated as being required according to the cubical content, but presumed that a large portion of this was accounted for by the radiators used in the corridors, which is not customary, and added that he did not quite agree with Mr. Ralston as to the necessity for increased radiation on floors above the third as he believed that the chimney action of tall buildings has been over emphasized.

Following this discussion, Webster Tallmadge, of New York City, gave a talk on zone heating.

◆

Bronx Masters Plan Mass Meeting

The Master Plumbers' Association of the Bronx, New York City, has planned a mass meeting for December 10 at the Bronx Masonic Temple. Trade conditions are to be discussed.

Obituary

Walter W. Smith

Walter W. Smith, past president of the Master Plumbers' Association, Trenton, N. J., died suddenly November 8, in that city. Mr. Smith, who was in his 50th year, had been suffering somewhat from a stomach ailment but had attended to his business every day up to the time he went to the hospital. He is survived by his wife and two grown children. Besides being a past master of Mercer Lodge, No. 120, F. and A. M., Mr. Smith was a member of the Shrine as well as a member of the Patriotic Sons of America.

Charles Smith

Charles Smith, plumbing and heating contractor of Alameda, Calif., died at his home there, November 18, in his 53rd year. Mr. Smith was confined to his bed for four months prior to his passing. His son, Charles, Jr., will carry on his father's business at 1250 Park street. Mr. Smith was an earnest association man, having been very active in the Alameda County Merchant Plumbers' Association on various committees for the past 15 years.

Charles G. Spinner

Charles G. Spinner, heating and plumbing contractor of Rome, N. Y., and secretary of the Rome Master Plumbers' Association, died on November 17, in his 42nd year, after an illness of several weeks. He had been in business in Rome for the past twelve years. Mr. Spinner was born in Mount Vernon, N. Y., to which city the body was taken for burial.

Mechanics building in Boston where the national convention will be held

Preparations for 1930 N. A. M. P. Convention Rapidly Taking Shape

IN ACCORDANCE with plans formulated by the Board of Directors of the National Association of Master Plumbers and the National Convention Committee at the recent executive meeting held in Boston, Mass., preparations for holding the 1930 Boston convention and exposition are going forward at a satisfactory pace.

The Boston Master Plumbers' Association has opened an office and headquarters, preparatory to the coming convention, at 25 Huntington avenue, room 328 of the Nottingham building, Boston.

The headquarters of the convention will be at the Statler hotel, which is within three minutes ride or five or six minutes walking distance of the exhibit and meeting hall. Sessions of the convention will be conducted in the Grand Hall of Mechanics building, while the exhibits will be placed in the Exposition Hall adjoining.

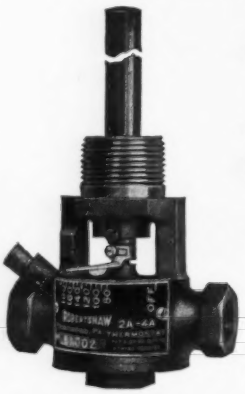
The Mechanics building, with its 40,000 square feet

Above: John Quinn, president of the National Association, and P. W. Donoghue of Boston, chairman of the convention committee

Right: Group of directors of the National Association of Master Plumbers and officers of the Boston Master Plumbers' Association, taken at Lexington, Mass.

Every Plumber Should Know About the Various Types of

ROBERTSHAW
Thermostats



Throttling Type

Throttling Type

For Side Arm Water Heaters or Automatic Storage Water Heaters
All sizes from ⅜ to 2 inches

Robertshaw Throttling Type Water Heater Thermostats are fully covered in
CIRCULAR FORM R-4
Write for it!

Snap-Action Type

Snap-Action Type

For Storage Water Heaters and Furnace and Boiler Temperature Control. Gas Pipe sizes from ½ to 2½ inches

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Room Temperature Control

Room Temperature Control

Entirely Gas operated
Non Electric—No Volatile Liquids
Easily Installed
Attractive in appearance
Will control the Room Temperature within a range of 1½ degrees plus or minus

Robertshaw Room Temperature Thermostats are fully described in
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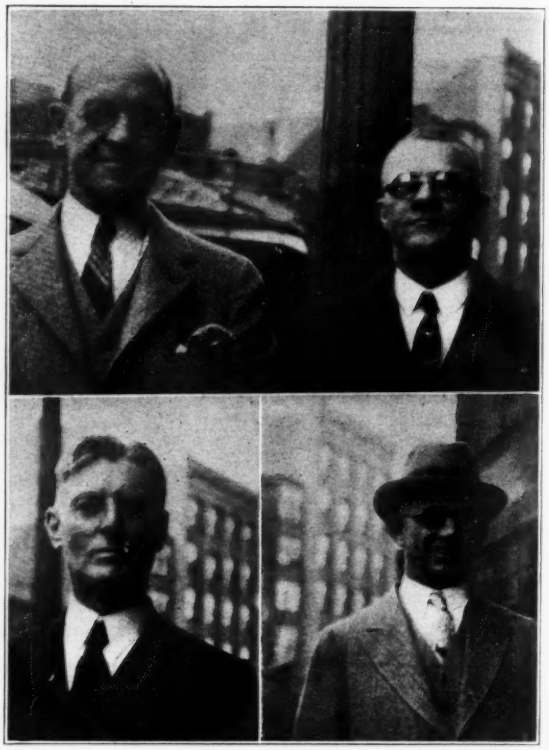
Write for it!

Any or all of the Above Circulars are yours for the Asking.

ROBERTSHAW THERMOSTAT CO.
YOUNGWOOD, PA.



Top picture: Thomas F. Nolan, Albany; Fred W. Quinter, Washington, D. C. Bottom pictures: John F. Donovan, Philadelphia, Pa., executive clerk; A. H. Snyder, Detroit. Photos taken at the recent meeting of the national directors

of space, furnishes a number of influencing factors which recommend it as a convention and exposition site. Water, gas, oil and electricity, four important considerations, are available in the building. The layout of the exhibit hall is arranged so that the manufacturer may receive full value from his booth space. Meeting hall, exhibit rooms, and dining hall are under one roof. Furthermore, the building provides a basement that may be utilized as storage space by exhibitors for products, cases, etc., while booths are being set up, as well as for temporary storage before and after the exposition. A railroad siding runs to the rear door.

◆

Monthly Meeting Held in Buffalo

The Western New York Chapter of the American Society of Heating and Ventilating Engineers held its October meeting at the Hotel Markeen, Buffalo, N. Y., with an attendance of more than fifty-five members and guests. Roswell Farnham was appointed as a committee of one to foster interest in attendance at the national convention to be held at Philadelphia in January. Both the president and treasurer of the national society, Thornton Lewis and W. E. Gillham, are members of the Western New York Chapter.

The speaker of the evening was L. A. Harding, who gave a detailed address on "Power from Process Steam." His talk was followed by a general discussion, in which Messrs. Burke, Schnelling, Harding, Hirschman and Porzell took part.

Discuss New Michigan State Plumbing Law

More than 120 representatives of the plumbing industry and the state department of health in the State of Michigan gathered at the Elks clubhouse in Kalamazoo on the evening of November 20, to become familiar with and hear discussed the new Michigan state plumbing law. The meeting was sponsored by the Kalamazoo master plumbers' association. Master plumbers, journeymen, inspectors, and others engaged in or working at the trade and representatives of the state department of health constituted the attendance. At 6:45 p.m. the group sat down to dinner, after which the meeting was opened and presided over by W. A. Johnson of Kalamazoo, secretary of the Michigan state association of plumbing and heating dealers.

William C. Groeniger

The state plumbing law was adopted August 28, 1929, as "An act to provide for the licensing of plumbers, the supervision and inspection of plumbing and the adoption and enforcement of minimum standards therefor by the state commissioner of health, with the concurrence of the advisory council of health."

Attention should be called to the provision that the adoption and enforcement of minimum standards is a function of the state commissioner of health. According to advices obtained at this meeting, the advisory council of health is an instrument proposed and obtained at the request of Health Commissioner Guy L. Kiefer. It consists of five members which, it is understood, later will be reduced to three. Enforcement, through the employment of inspectors and assistants, is a duty of the health commissioner. The law provides that the commissioner appoint three plumbing examiners of whom one shall be a practical master plumber, one a practical journeyman, and one a member or employe of the state department of health. The appointment of these examiners has already been made in the following: John Watson of Port Huron, as representing the master plumbers in the capacity of president of the Michigan state association of plumbing and heating dealers, M. L. Ferris of Battle Creek, representing the journeymen as president of the association of journeyman plumbers of Michigan; and J. M. Hepler of Lansing, representing the state department of health in the official capacity of assistant state sanitary engineer.

The task before the examiners is the consideration of applications from the master plumbers and journeymen of Michigan and the licensing of all qualified, before the first of the year or as soon thereafter as possible. A careful survey indicated that there are ap-

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NIPPLES
In the selection of pipe, in the threading, machining and finally packing and shipping, every possible care is taken to make Ware Nipples as nearly perfect as possible.
All this is done for your ultimate protection.
Ask for WARE NIPPLES by name.
Ask your jobber to supply you.
WARE COUPLING & NIPPLE CO.
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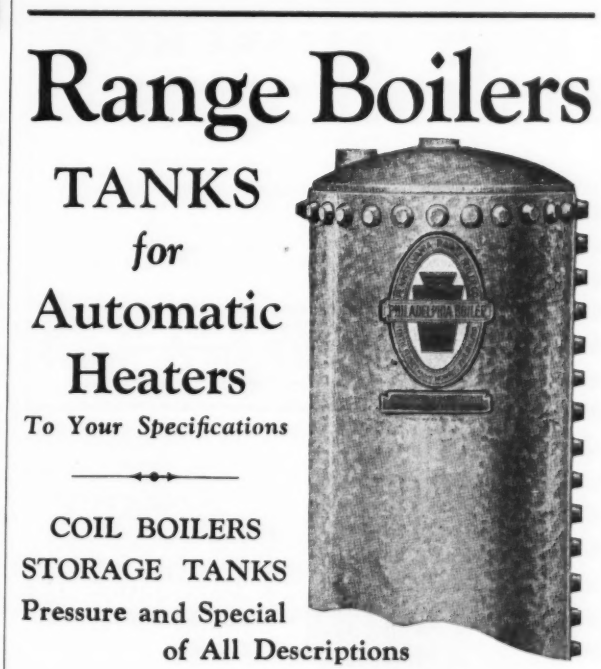

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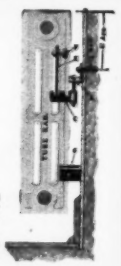
—a complete line!
E-Z RADIATOR HANGER
For Wall and Tube Type Radiators


Style "C"

Now E-Z Hangers ideally meet your requirements for hung radiation, both wall and tube type. Installations easily made at minimum expense, and every job clean, sanitary, entirely satisfactory.

Fully adjustable, horizontally and vertically. Hanger out of sight. No obstruction back of radiator. No need for accurate measurements of anchor bolts. Adapted to any wall material. Recommended by architects and contractors.

Also Manufacturers of E-Z Insert

Healy-Ruff Company
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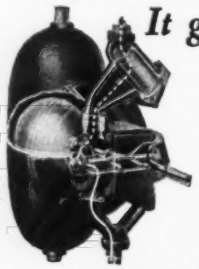

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A FEW DOLLARS MORE

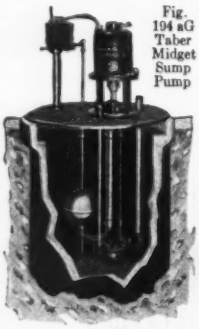
Fig. 194 nG Taber Midget Sump Pump

YOU sell, or ought to sell, satisfactory cellar drainage . . . protection from water damage to merchandise or goods stored in the basement . . . when you sell a sump pump installation.

Why permit a few dollars to stand in the way of 25 years of satisfactory service rendered by the Taber Midget Sump Pump? Write for description and prices. See page 909, Domestic Engineering Catalog.

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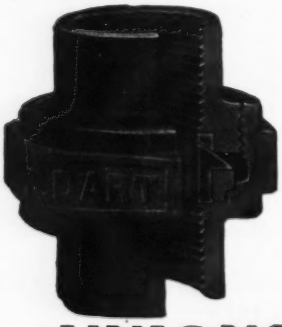

UNIONS

Two bronze-to-bronze seats in Dart Unions give double protection.

When you make up a Dart joint, it's made to stay, without a leak.

E. M. DART MFG. CO.
Providence, R. I.

The Fairbanks Company
Sales Agents
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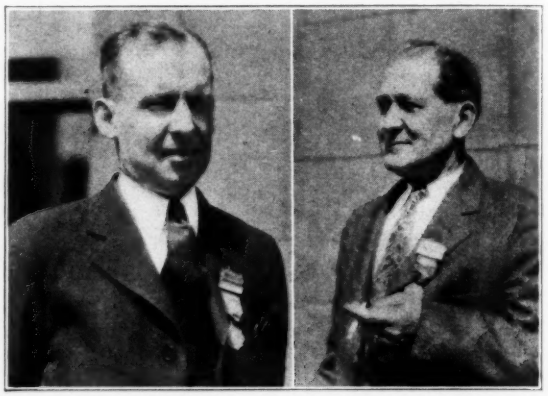
proximately 5000 master plumbers and journeymen in Michigan. On the general estimate of there being four journeymen to one master, this makes the number 1000 master plumbers and 4000 journeymen plumbers.

The principal speaker of the evening was William C. Groeniger who came to address the meeting from Lansing where he had been working with the members of the advisory council, on the minimum standards for the state. It is said for this code that it embodies the



W. A. Johnson, Kalamazoo, and John Watson, Port Huron

advanced practices contained in the Hoover code as well as the best plumbing practices of the various state and local codes.

The law providing for the licensing of plumbers, the supervision and inspection of plumbing and the adoption and enforcement of minimum standards has been passed. Master plumbers and journeymen plumbers are being licensed, inspection is being planned and a set of minimum requirements has been drawn up. In the matter of the code, it now remains for a public hearing to be held after which, with necessary revisions, the requirements will be adopted by the commissioner of health.

It was strongly emphasized on the men present that the matter in consideration is a plumbing code and not a plumber's code. Public health is paramount, as evidenced in the placing of the various powers under the general supervision of the commissioner of health.

◆

Is Made Chamber of Commerce Director

R. Carter Beverley, vice president of the Master Plumbers and Heating Association of Richmond, Va., has been named for the board of directors of the Richmond Chamber of Commerce from the Inter-Club council. Mr. Beverley is a representative of the local association in the Inter-Club council, which is composed of leading civic organizations.

◆

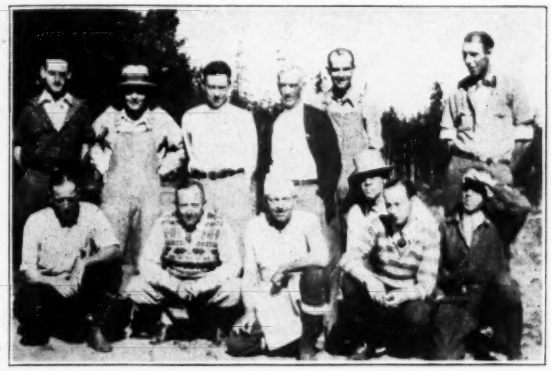
John W. Connolly Called by Death

John W. Connolly, Rochester, N. Y., former plumbing and heating contractor, died at his home in that city on November 7. Mr. Connolly was for ten years building inspector of Rochester, and was well known to the plumbing and building trades there. He was a member of the Elks club and president of the Erie Social and Athletic club.

Indiana Zone Meets at Michigan City

Rainy weather no doubt reduced the attendance at the zone meeting of District No. 7, Indiana Society of Sanitary Engineers, held at Michigan City, Ind., November 18, but those who attended were well repaid for their time and discomfort spent on the road as attested by the interest manifest in the topics discussed. The meeting began with a dinner at 6:30, Henry McAuliffe of East Chicago, chairman of the seventh district, presiding.

Speakers of the evening were S. Lewis Land of the Plumbing and Heating Industries Bureau, Chicago, who substituted for E. L. Flentje, manager of the bureau. Mr. Flentje was unable to attend on account of another engagement. Dr. John B. Bertling, secretary of the board of health of South Bend, was the guest of honor and addressed the delegates on the subject of securing health legislation. Dr. Bertling has been active in securing passage of an ordinance in South Bend providing for the examination and licensing of plumbing contractors. State President Arthur Lahr of Lafayette, Vice President William H. Burke, and Charles M. Oberlin, president of the South Bend organization, spoke upon subjects affecting the trade.



Members of the Peerless Colorado Co. on a recent three-day outing in the Rockies, near Waldon, Colo. In the center is C. Arthur Anderson, a plumbing supply salesman, dressed in cook's clothes. At the left of him, in the bottom row, are William J. Heatley and W. C. Atkins, formerly of Hedges-Atkins Supply Co. At the right are Walter C. Hansen, Charles Ferrel and Major Harrelson. In the top row, from left to right, are J. T. MacCluskey, Bert Fiscus, K. W. Atkins, Frank J. Malloy, Al Callaghan and Lee Lake

Chairman McAuliffe called for a round table discussion and each member was required to introduce himself and give voice to his ideas on matters that he believed concerned the members. Much constructive thought was brought out.

Edward Kanney of LaPorte extended an invitation to the zone officers to hold a meeting in his city. Members of the Elkhart organization were also present. After the meeting adjourned, the members went into huddles assembled in different groups to discuss different phases of the business.

Delegates were present from Elkhart, South Bend, The Calumet District, LaPorte, Michigan City, Gary and Chesterton. Jerry Simpson of Michigan City arranged the meeting.

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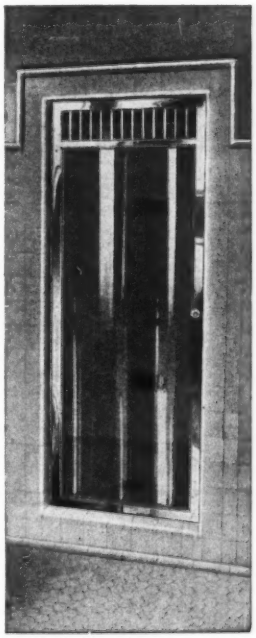
There is a labor-saving, beautifying *C&S* Shower Door Enclosure or Shield for every bath or shower room need.

In Chromium Plate, Nickel Silver or Nickel Plate—from your jobber.



C&S 632 Patented June 12, 1923

INSTALLING *C & S* Shower Doors, Shields or Enclosures is never a difficult job. Show *C&S* products to your customers for their new homes or remodelled bathrooms. They will sell themselves.

They save cleaning, time and add greatly to appearance. They are indispensable for the better homes.

Write for the C & S catalog. Let it help you demonstrate this superior line of shower and bathroom beautifiers.

Crist & Schilken Co., Inc.
PITTSBURGH, PENNA.

Heating Engineers Discuss Fuel

The recent meeting of the Michigan Chapter of the American Society of Heating and Ventilating Engineers, held at the Cadillac Athletic club, Detroit, Mich., was attended by 134 members and guests. During the dinner, entertainment was provided, and afterwards the meeting was devoted to a discussion of fuel.

Left to right: E. E. Bolte and J. A. Cutler, C. W. Deland, secretary of Illinois chapter, S. L. Hans and J. H. Houghteling. Insert at bottom: W. B. Graves and R. C. Bauer. Photos taken at the golf meet of the Illinois Chapter of the American Society of Heating and Ventilating Engineers

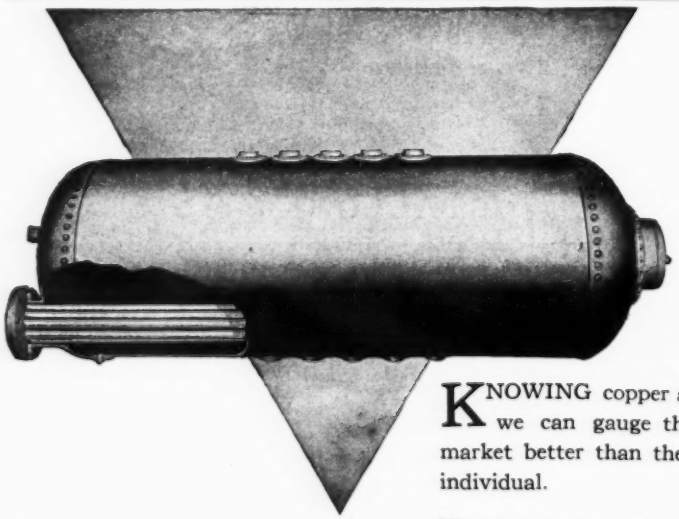
The first speaker of the evening was Charles Griffith of the Anthracite Coal Service, who reviewed the problems that have arisen in connection with the use of anthracite coal. He was followed by Homer R. Linn, an authority on oil burners, of the Chicago office of American Radiator Co. Mr. Linn recommended the use of automatic draft regulators with oil burning installations. He also spoke about some of the most frequent complaints against oil burners. The third speaker of the evening was William Hampton of the Detroit City Gas Co., who spoke on the future of gas for house heating; and after Mr. Hampton's talk the meeting was thrown open for general discussion.

◆

Canadian Ventilating Engineers Meet

The Canadian Chapter of the American Society of Heating and Ventilating Engineers recently held its opening fall meeting in Toronto, Ont. A. Travers Newman, who was the principal speaker of the evening, sketched the history of plumbing in high buildings from 1890 to the present.

A lengthy discussion on the advisability of establishing a fund for annual prizes for the best thesis prepared by university students on subjects directly related to heating and venti-



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Cleveland, Ohio, Guardian Bldg.
Denver, Colo., 414 W. Colfax Ave.
Detroit, Mich., 1728 Ford Bldg.
Houston, Texas, 1308 2nd Nat. Bk. Bldg.
Los Angeles, Cal., 517 Hollingsworth Bldg.
Minneapolis, Minn., 716 Builders Exchange
Montreal, Quebec, Canada Cement Bldg.
New York, N. Y., 271 Madison Ave.
Philadelphia, Pa., 1500 Walnut St.
Pittsburgh, Pa., Union Trust Bldg.
Portland, Ore., 1000 Buyers Bldg.
Salt Lake City, Utah, Kearns Bldg.
San Francisco, Cal., Sharon Bldg.
Seattle, Wash., 415 Lenora St.
St. Louis, Mo., 3605 Laclede Ave.
Syracuse, N. Y., 404 So. Clinton St.

lating took up the greater part of the meeting. It was pointed out that such a fund would stimulate the interest of mechanical engineering students in these branches, that there was a need for these men in the industry and that openings for such men existed.

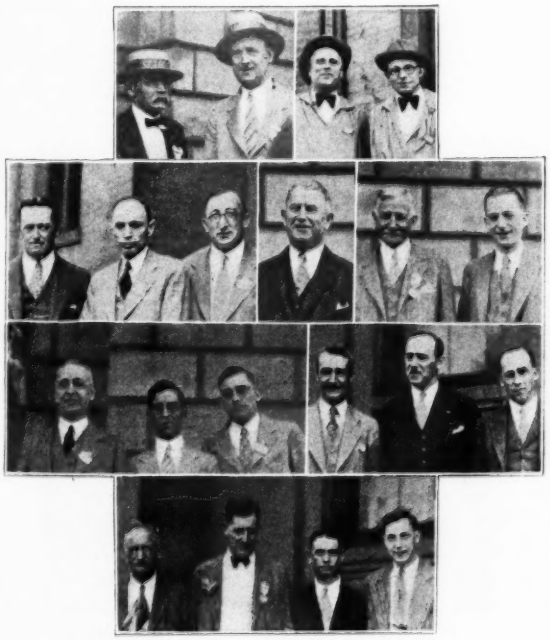
Notice of a motion for a limited Ontario membership, providing for membership in the Canadian Chapter without membership in the parent society, was read at the meeting. This motion will be made at the next meeting of the chapter.

◆

November Meeting Illinois Chapter A. S. H. V. E.

Welding of pipe was the topic at the November meeting and dinner of the Illinois Chapter of the American Society of Heating and Ventilating Engineers, held in Chicago on the evening of November 11. R. F. Outcault, resident engineer, development section, Linde Air Products Co., Chicago, talked on welding as applied to the piping for heating systems, among the illustrations shown being parts of the heating systems of the Carbon and Carbide building and the new Montgomery Ward building, both in Chicago.

Steam piping, bends to lessen friction and facilitate erection of piping, the welding of sheet metal ducts and other phases of welding were discussed and many questions were asked and answered. The talk was illustrated with lantern slides. Fifty-six members and guests were present.



Top row: Paul Becker and Frank Murphy, both of St. Louis, Mo.; C. O. Hollen and William McGraw, both of Ridge Tool Co., Elyria, Ohio. Second row: E. W. White, R. E. Engle, and L. A. Brahler, all of Delco Light Co., Dayton, Ohio; W. J. Kirby, E. H. Kunde and Paul G. Cass, both of Pittsburgh, Pa. Third row: Cliff Mahaffey, E. S. McLean and Roy S. Richard, all of Speakman Co., Wilmington, Del.; A. E. Deskan, I. D. Blumenthal and J. Dawber, all of Radiator Specialty Co., Cleveland, Ohio. Bottom row: J. H. Struebing, J. E. Struebing, C. A. Regner and Walter Struebing, all of Tonawanda, N. Y. Photos taken at convention of National Association of Master Plumbers

This carton of **DUR-A-BALS** on your counter will sell itself in a short time, with no effort on your part and bring you an attractive profit.

DUR-A-BALS, you know, are the *new* tank balls which do not swell, elongate or distort and are not affected by any water.

From your jobber.

Lavelle Rubber Co.
320 W. Illinois St. - - Chicago, Ill.

WE ARE NOT

'WAY DOWN

IN

DIXIE

WHEN IT COMES TO GETTING

Good Plumbing Goods

IN A HURRY

Our Same Day Shipments of Just What You Order, Sent Just as You Order, Put Us Really

NEAR YOU

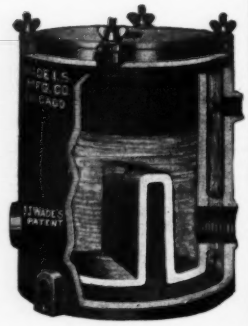
LET US PROVE IT, PLEASE!

THE **RICHMOND** FOUNDRY & MANUFACTURING CO Inc.

RICHMOND, VIRGINIA

"A DEPENDABLE SOURCE OF SUPPLY"

Wade
Accessible Drains



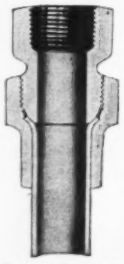
Water cooling is the soundest of all known methods of collecting grease, and because the WADE Water Jacket Grease Trap affords the greatest cooling area, it therefore is one of the best grease collectors made. Write for details.

Ask your jobber about it.

Wade Iron Sanitary Mfg. Co.
1717 Canal Street Chicago, Ill.

NIBCO Compression Fittings

For Copper Tube Plumbing



Sectional view of Nibco Coupling

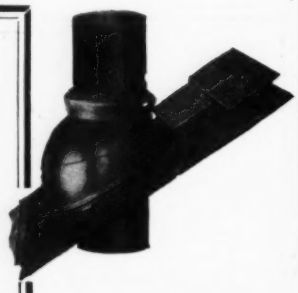
The use of Copper Service Tube for all kinds of plumbing has been made possible by Nibco Compression Fittings which eliminate the necessity of cutting threads or making wiped joints. Copper Tube piping is rust-proof, non-corrosive and LESS EXPENSIVE than either brass or lead.

Write for further information about this new and better method of plumbing Today. Ask for Bulletin A-167 and mention the name of your jobber.

NORTHERN INDIANA BRASS CO.
Elkhart, Indiana

Here is the flashing that not only meets every requirement for easy installation and long, leak-proof service but it has all of the fine appearance that the new vogue in roofs demands.

From your jobber



THE BULLARD SPECIALTY CO.
TIFFIN OHIO

It Pays to Use the

NEW BEAVER

Easy-Cutting Die Stocks

Square-End Pipe Cutters and Power Drives

WRITE FOR CATALOG No. 18

THE BORDEN COMPANY 510 DANA AVE. WARREN, OHIO

Awarded Virginia Plumbing and Heating Fellowship

Robert C. Wray of Memphis, Tenn., 22 year old honor graduate of the College of Industries, Carnegie Institute of Technology, Pittsburgh, has been awarded the Virginia plumbing and heating fellowship at Virginia Polytechnic Institute for the 1929-1930 session. The fellowship is valued at $750 for the ten month term.

Robert C. Wray

The question of establishing the fellowship came before the annual convention of the Associated Plumbing and Heating Contractors of Virginia, meeting at the University of Virginia, last March, and all plans and details were left to the board of directors. After finishing his course, Mr. Wray expects to continue in the plumbing and heating business.

◆

Sacramento Masters Confer With State Association Secretary

The Sacramento Plumbers Association, of Sacramento, Calif., recently had the pleasure of entertaining Charles Hutton, of Los Angeles, Calif., at dinner in the Elks Club. Mr. Hutton is secretary of the California Association of Master Plumbers, and went to Sacramento to confer with the local body in regard to the state convention, which will be held there next May.

◆

Richmond Association Holds Monthly Meeting

The Master Plumbers and Heating Association of Richmond, Va., held its regular monthly meeting, November 12 in the Builders Exchange. Among those present were H. G. Longworth, president; E. G. Harris, J. C. Pettigrew, H. A. Carter, T. E. Beckner, T. A. Talley and R. H. Griffin, executive manager.

It was announced that the election of officers for 1930 will be held at the December association meeting, and a committee was appointed to nominate candidates for the elective positions. This committee is composed of C. G. Holyfield, chairman, H. A. Carter, W. G. Winter, J. G. Boehling and H. B. Johnson.

◆

Death of Robert H. Snead

Robert H. Snead, Uniontown, Pa., who had been engaged in the plumbing and electrical contracting business in Xenia, Ohio, for almost twenty years, died at his home in Uniontown on October 22. He retired from business several years ago on account of poor health.

◆

Frank C. Brown Called by Death

Frank C. Brown, proprietor of the Brown Plumbing Co., Warren, Pa., died at his home in that city, recently, following a long illness. He had been engaged in the plumbing business in northwestern Pennsylvania for twenty-seven years.

Pine Bluff Masters Adopt New Certification Plan

The Master Plumbers' Association of Pine Bluff, Ark., has adopted a plan to guarantee under bond the workmanship and materials in all contracts handled by firms that are members of the organization. At a recent meeting during which the guarantee plan was approved, several members and guests made talks stressing the importance of good plumbing in relation to community health.

B. Robinson is president of the Pine Bluff association; C. A. Smith, vice president, and M. W. Keller, secretary and treasurer.

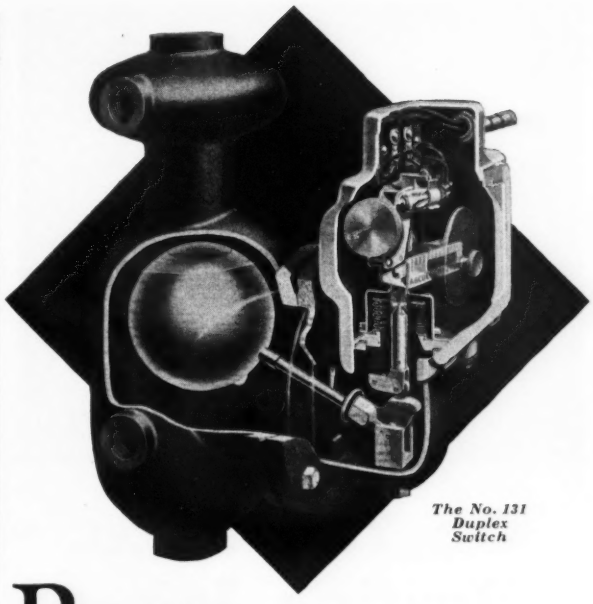
◆

Plumbing and Heating Club Meets

Members of the Plumbing and Heating Club of the Bay Cities answered the secretary's announcement in person when about one hundred and fifty persons gathered in the banquet room of the Athens club, Oakland, Calif., on the evening of November 13. An exceptionally well arranged program was a feature of the evening, business and entertainment being judiciously mixed.

President J. V. Young of San Francisco opened the meeting. Following a brief address of welcome by Robert Duncan of Oakland, vice president of the Alameda County Merchant Plumbers' Association, the gavel

Top picture: Fergus McLoughlin, president of New York State Master Plumbers' Association; Vincent J. Duffy, secretary of state association; John J. Dixon, state treasurer; John F. Rogers and Fred Schmalstich, zone delegates of New York association. Middle picture: The outing committee, back row—John D. Cooley, Miss Marion Taylor, office secretary of the Manhattan association; Richard Anderson, Henry J. Berg. Front row: Nat Weinstein, E. J. Healy and S. L. Snyder, manager of master plumbers' baseball team. Bottom picture: S. H. Welch, past president of New York state association; George Arnone, secretary of Bronx association; Harry Sugarman, president of Bronx association. Photos taken at the outing of the Manhattan Master Plumbers' Association



The No. 131 Duplex Switch

POSITIVE BOILER PROTECTION . . .

with this Combined Pressure Control and Low Water Cutoff

THE No. 131 Duplex Switch gives complete and positive boiler protection against high pressures and low water levels. It is a pressure control as long as water remains at a safe height. It is a positive cut-out when water falls below the safety level, shutting off the burner and keeping it from operating until the proper water level is restored. It is simple and dependable in operation. By combining the pressure control with the low water cut-out feature, it eliminates the extra cost of the pressure control used on steam jobs.

It controls pressures over an adjustable range of from 14 oz. to 10 pounds. The pressure control mechanism is of a balanced beam type, no spring being used. Separation from water compartment is provided by use of a flexible copper bellows. The Duplex Switch is easily installed by attaching it to the gauge glass tappings.

Write for full information about this product or any problems you may have of automatic control.

TIME-O-STAT CONTROLS COMPANY

ELKHART, INDIANA

Successor to

Absolute Con-Tac-Tor Corp. *Time-O-Stat Corp.*
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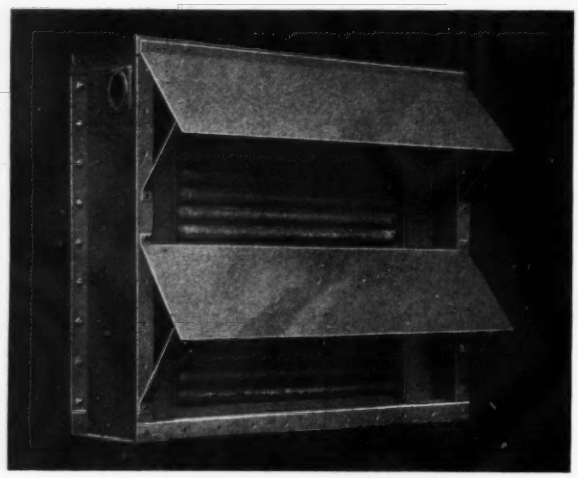
Manufacturers of AUTOMATIC CONTROLS for Oil Burners—Gas Burners—Coal Burners—Electric Refrigerators—Furnace Fans—Mechanical Stokers—Industrial Ovens—Ice Machines—Unit Heaters—Water Heaters . . .also of Sign Flashers—Mercury Switches—Electric Heaters—Corrugated Metal Bellows.



On Your Next Heating Job— Try Clarage

WHEN you select Clarage Unit Heaters for factory or garage installation, you take no gamble.

First, because Clarage Unit Heaters are sold exclusively to heating contractors by direct Clarage representatives. This means that on every job you can have the help of a competent fan heating engineer.

Second, because Clarage engineers draw upon a complete line of equipment in making recommendations—a line of both ceiling and floor type unit heaters broad enough to meet any requirement—small or large—no matter how special. This means results produced—guarantees made good.

From the contractor's standpoint, Clarage Unit Heaters are very profitable equipment to install. The expert assistance afforded by Clarage engineers, and the scope and quality of the product, assure satisfied customers—no loss of time and profit through costly "come-backs." On your next heating job—try Clarage! Write us for complete information.

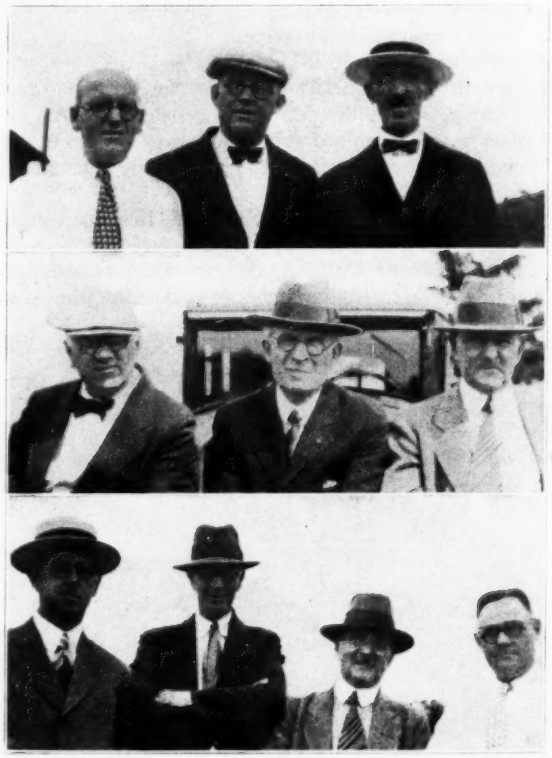
CLARAGE FAN COMPANY
KALAMAZOO, MICHIGAN
Sales Engineering Offices in Principal Cities

CLARAGE
Unit Heaters

was turned over to Harry G. Newman of Oakland, formerly president of the California state association.

Referring to the series of twenty conferences on business administration and creative salesmanship, sponsored by the Alameda County Association, Mr. Newman asked Secretary V. A. Edgeworth to explain how these conferences are functioning and what is being accomplished.

"Through the co-operation of the vocational departments of both the Oakland public schools and the University of California," said Mr. Edgeworth, "and under the leadership of an able referee, these conferences are achieving all and more than was expected of them. Instead of taking up subjects in schoolroom fashion, they are handled after the manner of conferences, each point



Top row: George Woodbury, President of North Shore Master Plumbers' Association; C. F. Sheehan, plumbing inspector of Peabody; Peter P. Griffin, plumbing inspector of Salem, Mass. Middle row: J. Preston Perham of West Roxbury, director of vocational training in Massachusetts; John Ryan of Lynn, president of Lynn association; R. B. Williams, H. B. Smith Co. Bottom row: Thomas Reed, F. S. Williams of S. M. Howe Co., R. B. Williams of H. B. Smith Co., and H. A. Lord of Peabody, Mass. Photos taken at the outing of the North Shore Master Plumbers' Association

being debated in turn until agreement is reached by the majority." Mr. Edgeworth introduced four conference members, each of whom presented some one subject that has been under discussion.

The first conference member, J. B. Morse of Oakland, spoke on "The Merchant Plumber as a Business Man." Mr. Morse presented a clear conception of the fundamentals of business administration, stressing the need for executive ability or the power of leadership.

L. A. Bryant of Berkeley was given close attention when he indicated the thoroughness with which the con-

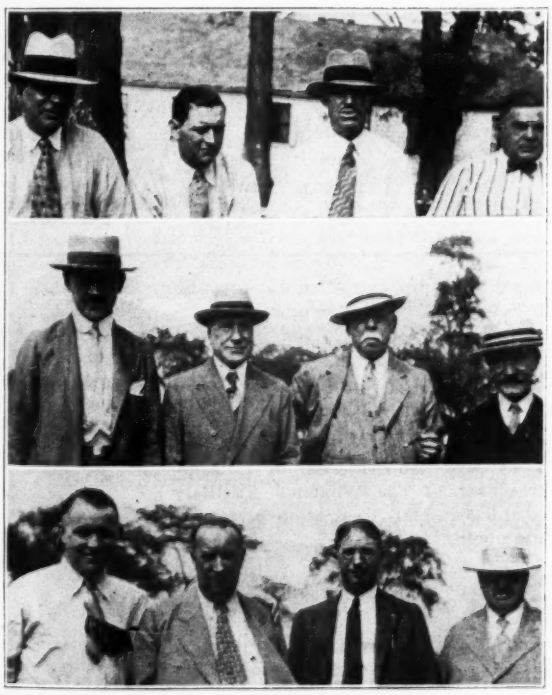
ference had gone into the matter of overhead. Having chosen "Is Overhead Properly Accounted For?" as his subject, Mr. Bryant proceeded to define overhead, concluding with the method employed for properly arriving at this most elusive element of modern business.

William D. Evans of Oakland spoke briefly on some of the higher aspects of business ethics, with especial reference to qualifications needed for the upbuilding of a winning personality.

Frank Mauzy of Walnut Creek spoke on the subject of the jobber and the master plumber. Touching on the relationship between these two branches of the industry, Mr. Mauzy said in part: "If the jobber can be persuaded to function strictly in the capacity of a wholesaler, and confine his sales to the merchant plumber only, he will have a very definite place in this industry. In fact, it might mean the establishment of a co-operative program by the jobber and merchant plumber that would permit of a more generous measure of prosperity."

One of the popular hits of the evening was an address on astronomy by Max Horwinski, of the Horwinski Printing Company. Following his introduction, the speaker launched into his subject with all seriousness, but it wasn't long before his clever burlesque showed through. His was a rare brand of humor.

Among those present were L. J. Kruse of Berkeley and C. R. Hutton of Los Angeles, past president and executive secretary, respectively, of the California state association; also H. W. Finch, Curtiss N. Gilley and Joseph Ahlbach, of San Francisco.

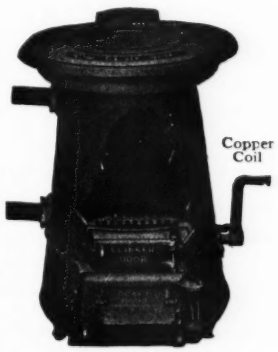


Top row: Raoul Renaud, A. Renaud and James Cadoret, all of Woonsocket, George Grimord of Woonsocket Plumbing Supply Co., Woonsocket, R. I. Middle row: A. Birtwell and Charles Crossen, both of East Providence; George G. Lees and James Catrella, both of Providence. Bottom row: L. J. Montgomery, National Radiator Corp.; R. Mountney of Providence, W. H. Bangs of Thornley Supply Co., and R. Mountney, Sr., of Providence. Photos taken at the outing of the Rhode Island Master Plumbers' Association

CLE-BAR WATER HEATERS

PUT in a water heater that requires minimum firing attention—Cle-Bar is the one.

A shovel of coal once a day will keep the average home in hot water for every purpose.



Low in first cost, low in operating cost, the Cle-Bar is bound to appeal to your customers and to you for the added profit it makes possible.

CLEGHORN CO.
86 Broad St.
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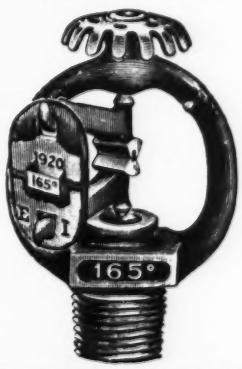
POSITIVE protection against fire is something that everyone wants and when its so easy—with C. S. B. Sprinkler Heads—your customers will appreciate being told about them.

They are fool-proof to the last degree and are likewise trouble-proof. Each is stamped with fusing degree and date of seal.

C - S - B SPRINKLER HEADS



C. S. B. SPRINKLER CO.
86 Broad St. :: Boston, Mass.

Woman's Page

We all know, of course, that there are many articles suitable for Christmas merchandising to be found in the master plumbers' stores. Sometimes, however, one does not fully realize how many attractive gifts can really be found there. A discussion of this subject at the auxiliary meetings would prove helpful. "Window shopping" is interesting to most women at any time, and when all the stores are decked out with holiday trimmings, this kind of shopping becomes doubly interesting. Women become acquainted with the various ways in which many kinds of merchandise are displayed by merchants in other lines. Consequently, women of our industry could give many constructive suggestions to the master plumbers, in regard to showroom arrangement and the attractive decoration of windows for the holiday season.

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State Auxiliary Organized in Connecticut

Mrs. W. E. McAndrew, president of the Women's Auxiliary to the National Association of Master Plumbers, is happy to report that a state auxiliary has been organized in Connecticut. The officers of this new auxiliary are: Mrs. H. C. Hughes, 14 Westport avenue, Norwalk, president; Mrs. Jas. H. Lowe, Waterbury, vice president; Mrs. Anson A. Mills, 25 Court street, New Britain, secretary; Mrs. J. M. Foster, New London, treasurer.

Denver Auxiliary Elects Officers

The October meeting of the Denver Women's Auxiliary was held at the home of Mrs. Frank Hanlin, 375 Broadway. A dainty luncheon was served at one o'clock, after which the meeting was called to order for the annual election of officers. All of the officers were re-elected to serve during the coming year. They are as follows: President, Mrs. Guy Stocking; vice president, Mrs. V. A. Kiser; treasurer, Mrs. E. B. Clayton; secretary, Mrs. Frank Bordeau; corresponding secretary, Mrs. R. A. Hurley; sergeant-at-arms, Mrs. Frank Hanlin. After the business meeting, whist was played, Mrs. R. A. Hurley winning honors.

Mr. and Mrs. Clarence Cooper entertained the members of the Denver auxiliary and their husbands at a six o'clock dinner at their home, 4435 West Fiftieth avenue, on November 2. A delicious dinner was served, consisting of fruit cup, chicken and gravy, hot biscuits, mashed potatoes, baked squash, pickles and jelly, followed with coffee and pumpkin pie covered with whipped cream. After dinner Mrs. Cooper's daughter sang several songs accompanied at the piano by Mrs. Frank Welle, who later gave some piano selections. The music was much enjoyed by the guests. Whist was then played, honors going to Mrs. Frank Bordeau, Mrs. Stephen Slattery, R. A. Hurley and Vincent Kandorf. Those present were: Messrs. and Mesdames S. J. Slattery, Fred Samson, Frank Welle, Robert Demmer, F. X. Bordeau, R. A. Hurley, Frank Hanlin, Vincent Kandorf, Clyde Newman, J. P. Brickey, John Laverty, Guy Stocking, E. B. Clayton, W. M. Becker, C. R. Cooper and daughter, Mr. Miller and Mrs. William

A Message to Auxiliary Members

By Mrs. Robert Liss, of Chicago treasurer of the Women's Auxiliary to the National Association of Master Plumbers.

I wish to say that I shall support our National President, Mrs. W. E. McAndrew, in the constructive work she is trying to do for our National Auxiliary, and, having served my local auxiliary and also my state auxiliary as secretary, vice president and president, I will bring my experience to my National office and hope to do everything successfully that is expected of me.

Hensler. Another meeting was held at the home of Mrs. Vincent Kandorf, 570 Gilpin street, on November 13.

San Gabriel Valley Auxiliary Organized

The Women's Auxiliary of the Merchant Plumbers' Association of San Gabriel Valley, Calif., was organized on Tuesday evening, October 22, 1929. Mrs. Swihart and Mrs. Hanson of Pasadena motored to Alhambra and assisted the San Gabriel Valley ladies in their organization of an auxiliary. The following officers were elected: Mrs. W. R. Bills, president; Mrs. Clarence Atkinson, vice president; Mrs. Roy Herrera, secretary-treasurer; Mrs. L. M. Hamm, sergeant-at-arms. Following the business meeting, the ladies joined the men, enjoying a social hour of visiting. Delicious refreshments were served.

Lawrence, Kans., Auxiliary Meets

The regular monthly meeting of the Women's Auxiliary of Lawrence, Kans., was held on Tuesday evening, November 5, with Mrs. A. T. Olson as hostess. The meeting was called to order at 7:45 p. m., and reports of the secretary and treasurer were read. After business had been transacted, a general discussion took place on "Plumbing in the Home," with Mrs. A. E. Woestemyer as leader.

Albany Auxiliary Holds Hallowe'en Dinner Dance

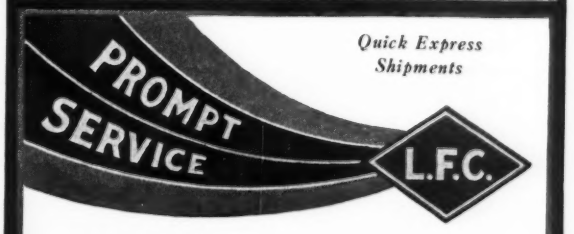
A successful dinner and dance was given by the Ladies' Auxiliary to the Albany Master Plumbers' Association on October 31. The hall was beautifully decorated for the Hallowe'en festivities. From the very beginning there was every indication that a good time was in store for all. President J. O. Stapf of the master plumbers' association, introduced the president of the auxiliary, Mrs. J. O. Stapf, who welcomed the auxiliary and members of the master plumbers' association. She also commended the members of the committee and emphasized the slogan of loyalty to the auxiliary and master plumbers' association. Dinner was then served, followed by impromptu speeches from some of the prominent persons present. Next came the dancing. The balloon contest was won by Richard Fay. Jack Kerwin was awarded a prize for the Jerusalem contest, as he was the only one who could place his seat. Charles Hernssman entertained with his pet monkey, which cut many amusing capers. Mr. and Mrs. William Cassidy were adjudged the prize dancers for the evening, and William Irwin won applause with his ballad dance.

The committee who arranged for the dinner and dance was composed of Mrs. Andrew Ryan, chairman, and Mrs. Raymond Niles and Mrs. Martin Farrell.

North and Northwest Auxiliary to Give Dinner Dance

The North and Northwest Ladies' Auxiliary of Chicago will give a dinner dance on Wednesday, December 4, at the Germania Club located at North Clark street and

Left to right: Mrs. Charles Zimmermann of Union City, past president of New Jersey state auxiliary; Mrs. A. A. Mills of New Britain, and Mrs. Charles U. Neumann of West Haven. Photos taken at the convention of the Connecticut Master Plumbers' Association



TIME-SAVING SERVICE

THE foreman reports running into unusual conditions—Plans are changed—A pipe or fitting must be had immediately or work will be tied up. . . . It is in just such cases that eminent engineers and contractors all over the country have reason to be thankful for our tremendous stocks.

When you need a pipe or fitting *quick*—wire "Lynchburg." . . . Almost every conceivable type is stocked—awaiting your order.

Bell and Spigot Pipe and Fittings from 4" to 48"

Flanged Pipe and Fittings, 3" to 84"

LYNCHBURG FOUNDRY COMPANY

General Office, LYNCHBURG, VA.

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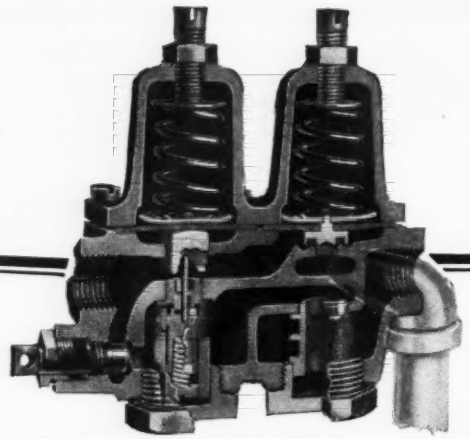

PAT. JAN. 8. 1929

5 EXCLUSIVE CASH ACME FEATURES

1 Simplicity of design making for easy service.

2 Dual strainer protection preventing dirt from entering and damaging the working unit.

3 The by-pass feature that allows quick filling and protects the regulator seat.

4 The sensitivity and long life of rubber diaphragms.

5 Quality throughout with no thought of cutting corners in either material or workmanship to meet a price—rather to build the best control for the job that can be built.

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A. W. CASH VALVE MFG. CORP.
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Sales Agents: Chas. H. Fiske, 431 So. Dearborn St., Chicago, Ill. Telephone Harrison 4968.

Eastern Sales Agents: H. M. Flemming Co., 30 Church St., New York City, N. Y. Telephone Cortlandt 1553.

Germania place, one block south of North avenue. Dinner will be served at 7:30 o'clock.

Portland Auxiliary Celebrates Birthday

At the last meeting, just before vacation, the Portland, Oregon, Women's Auxiliary celebrated its ninth birthday at the home of Mrs. Earl Parker, Multnomah Station. Mrs. Hanson, state president, was the guest of honor. Mrs. Charles Fullman made doll pin cushions in pastel shades for favors. And as no birthday is complete without a birthday cake, Mrs. Spreadborough "did the honors." Her huge cake was delicious and the decorations were a work of art. The auxiliary's schedule up to the first of the year is as follows: October 22—A theater party following a luncheon at the Congress Hotel. November 13—Luncheon and bridge at the home of Mrs. Orlo Kendall, 613 East 66 North. November 16—An evening's entertainment for the auxiliary members and their husbands at the residence of Mrs. George W. Kendall, 431 Rodney avenue. December (no date set)—Regular meeting at Mrs. Spreadborough's, 861 Mississippi avenue.

Philadelphia Auxiliary Has Sauerkraut Supper

The Women's Auxiliary of the Philadelphia Master Plumbers' Association gave a sauerkraut supper on November 7 at the meeting rooms of the master plumbers, 922 North Broad street, that city. Mrs. Maney J. Feeney as chairman of the committee arranging for the affair acted in the capacity of hostess for the auxiliary to the 145 persons who were present to enjoy a delicious supper. The members of Mrs. Feeney's committee were: Mesdames Hicks, Beahm, Donovan, Worrall, Soehle and Raid. The officers of the auxiliary are Mrs. George F. Hicks, president; Mrs. George J. Diggins, vice president; Mrs. John Seibel, treasurer, and Mrs. Myrtle Soehle Stratton, secretary. A party is planned by the Philadelphia auxiliary for November 29 at 3306 Germantown avenue. The proceeds derived from this social affair are to be used for entertainment of ladies attending the State convention at Philadelphia next May. Mrs. John Seibel is chairman.

Alameda County Auxiliary Entertains

A most enjoyable luncheon and afternoon of cards was had by the members of the Alameda County Auxiliary at Plumbers' Hall, 538 Twenty-fourth street, Oakland, Octo-

Top row: Mrs. B. Joseph O'Donnell, Mrs. Frank Rinehart, Mrs. Arthur Cavanaugh, Mrs. John Lavelle. Bottom picture: Group of ladies attending the outing of the Syracuse Master Plumbers' Association

ber 21. Those holding the highest whist scores were Mrs. R. Spiersch, Mrs. R. T. Schullerts and Mrs. Lolita Zeis. The five Richmond members constituted the committee on arrangements. These ladies were: Mesdames R. Spiersch, chairman; J. I. Collins, O. Rihn, R. W. Timmons and F. Spiersch.

Milwaukee Auxiliary Gives Party for Scholarship Fund

One of the most successful events ever held by the Ladies' Auxiliary of the Milwaukee Master Plumbers' Association was a party which took place Saturday, November 2, in the Crystal Room of the Hotel Schroeder. Part of the money secured from the party will be used as the Milwaukee group's donation to the national scholarship fund, according to Mrs. L. R. Schmaus, corresponding secretary of the local ladies' group.

Mrs. Walter Dusold, chairman of the entertainment committee, was in charge. Assisting her were Mmes. William Schoenrock, A. Bockes, G. Bronnenkamp, O. Dittmer, H. Bauer, J. Schuh, George Wussow, C. Hessling and A. Lesser. The following ladies were hostesses: Mmes. Otto Waskow, Fred Westfahl, William Schoenrock, H. Weber, L. R. Schmauss, R. Wenzel, R. Friend, P. Vogt, J. Brah, H. Dearsley, A. Haack, A. Voetcher, E. Henoch, A. Hoffmann, J. Hahn, C. Priegel, H. Haese, and P. Curley.

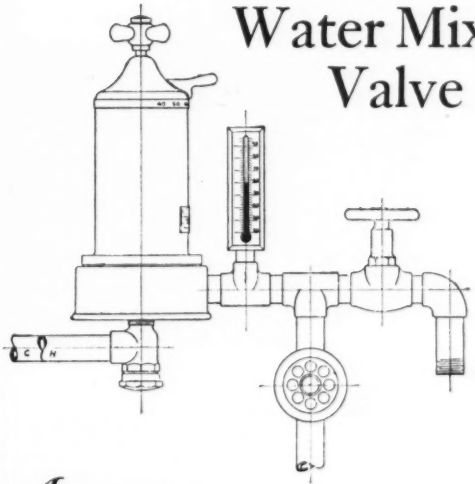
While the ladies agreed, when the party was over, that it had been a considerable amount of work, it was voted a splendid success. In the future there will be fewer small parties, according to a decision made by the group, but a dinner-dance will be held in the spring, and a large card party in the fall of each year.

Buffalo Auxiliary Elects Officers

On November 5, the regular meeting of the Women's Auxiliary of the Master Plumbers' Association of Buffalo,

Top picture: Mrs. Leon C. Blaisdell, president of the Maine auxiliary, serving the clams at the outing; Mrs. Neil Knudsen, vice president; Miss Knudsen. Bottom picture: A group at the recent outing of the Women's Auxiliary to the Maine Master Plumbers' Association

LEONARD
Thermostatic
Water Mixing
Valve



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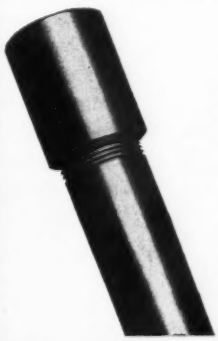

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1/8" OUR SPECIALTY

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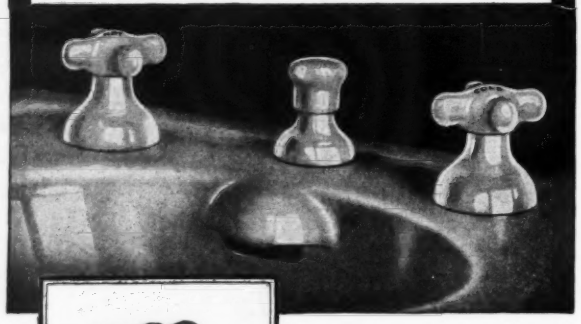
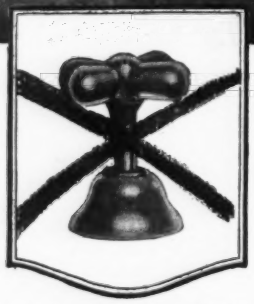
ALL-CHINA FAUCETS
WHITE, BLACK AND COLORS





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Write for Prices and Discounts

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N. Y., was held at which time the following officers were elected: President, Mrs. Julius Irr; vice president, Mrs. George Frank; secretary, Mrs. William Ludlow and treasurer, Mrs. Henry Ritter.

Germantown Auxiliary Gives Radio Party

On Tuesday evening, November 12, a most successful radio party was held by the Germantown (Pa.) Women's Auxiliary, at the home of Mrs. Reeves, 33 Manheim street. This party was so greatly enjoyed by members and their guests that all are looking forward with pleasant anticipations to the next event to be given by the auxiliary. It is planned to give a dinner to the master plumbers some time during February.

Philadelphia Auxiliary Attends Funeral

The officers and all the members of the Women's Auxiliary of the Philadelphia Master Plumbers' Association attended the funeral of Mrs. John Newsome, a fellow member, who died suddenly on November 3. The burial took place on November 7.

San Francisco Auxiliary Celebrates Thirty-Third Anniversary

On October 17 the ladies of the San Francisco auxiliary gathered at Studio Inn, 540 Seventh street, to observe the thirty-third birthday of their organization. There still remain three charter members: Mesdames James Britt, J. L. E. Firmin and Charles Mayer.

A delicious luncheon was served. Following the luncheon the ladies went in a body to the President Theatre and saw the popular comedy, "The Shelf."

Arrangements for this delightful occasion were handled by Mrs. J. J. McLeod and Mrs. Albert G. Trezise.

An air of gay festivity pervaded the November 7th meeting of the San Francisco Auxiliary when the ladies gathered for luncheon at the Stewart Hotel on Geary street. The long table was profusely decorated with yellow chrysanthemums. Following the luncheon service and the conduct of routine business, the ladies moved to an adjoining room for whist. Unusually close scoring featured the spirited play, the three highest marks being 118, 117 and 116. The 118 mark was reached both by Mrs. Joseph de Vecchio and Mrs. C. W. Lubliner. Mrs. George Y. Morton secured second honors with 117, and Mrs. William Koenig third with 116. Arrangements were capably handled by Mrs. Alex. Coleman and Mrs. William Dockery. Unusual interest will attach to the next regular meeting, set for December 5th when the officers for 1930 will be nominated and elected.

Canton Auxiliary Admits New Members

The Ladies' Auxiliary to the Canton Master Plumbers' Association was recently entertained at luncheon at Schneider's Inn on the Harrisburg road. Mrs. Carl Sponseller and Mrs. James Fife were the hostesses. During the business sessions two new members were taken into

Group of ladies attending the convention of the Alabama State Association of Master Plumbers

the association. Mrs. William Zernechel was presented with a gift from the auxiliary in honor of her appointment to a state office. Five hundred was played, honors going to Mrs. Walter Zernechel and Mrs. John Roth. The next meeting of the auxiliary will be held at the master plumbers' rooms on December 3. Mrs. Robert Heiman and Mrs. Robert Roth will be the hostesses. There will be a Christmas gift exchange.

Mahoning Valley Auxiliary Hears Health Program

The October meeting of the Ladies' Auxiliary of the Mahoning Valley (Ohio) Master Plumbers' Association was featured by a health program. A talk on "How to Keep Well," by Dr. Julia March Baird; a discussion, by Mrs. Jacob Brenner, of what club women are doing for health and sanitation in various parts of the state, and a paper on "Sanitation and Its Relation to Civilization," by Mrs. C. W. Wilson, proved very interesting to all.

Tampa Auxiliary Gives Party

A very delightful Hallowe'en party was held recently at the Tampa master plumbers' headquarters. Mr. Frank Williams, secretary, that night was referred to as "His Ghastly Majesty," and he invited the guests to the ballroom, decorated in orange and black, in a very spooky manner. There were about sixty or more guests in costume, who indulged in dancing until a late hour, when refreshments consisting of coffee, doughnuts and hallowe'en candies were served. The committee received much praise for the splendid social gathering.

Jersey City Auxiliary Plans Social Affairs

The Women's Auxiliary of Jersey City, N. J., has just had its first card party for the season. The party was held at the Masonic Temple on Bergen avenue. Various games were played, and many guests from out of town attended. After the card party, supper was served. The auxiliary is planning to hold a series of monthly parties for the benefit of the scholarship fund. Weekly luncheons, and theater parties, somewhat like the service clubs, are also being arranged.

Top picture: Mr. and Mrs. Louis Young of Mt. Vernon, N. Y.; Mrs. Arthur Fuchs with her son, Arthur, Jr.; Mrs. J. H. Thompson. Bottom picture: Mrs. A. H. Karl, Mrs. Thad. LeVinnes, Mrs. Wm. Godwin, Mrs. Frederick Grace. Photos taken at the outing of the Westchester County, N. Y., Master Plumbers' Association

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UNCONDITIONALLY GUARANTEED

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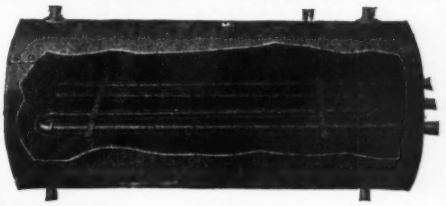

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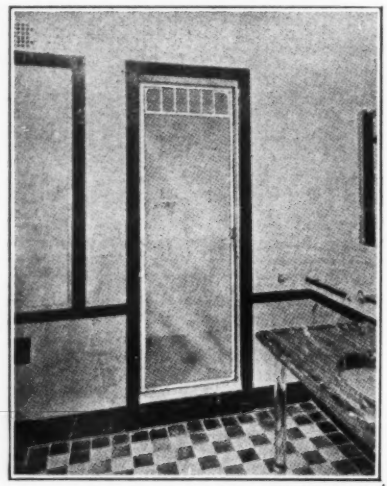
SHOWER-STALL DOORS



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A Large Float

Heavy Cast Brass Base

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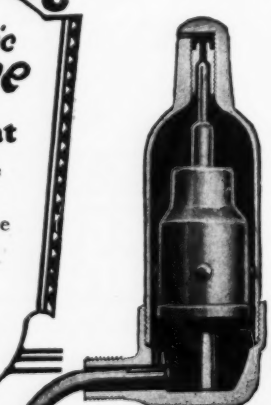

Cross Section

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Business Changes

Sawyer, Mich.—The Sawyer Plumbing Shop, formerly occupying quarters in the Peck block, is now located in the Knight building. Fred Schuknecht is proprietor of the firm.

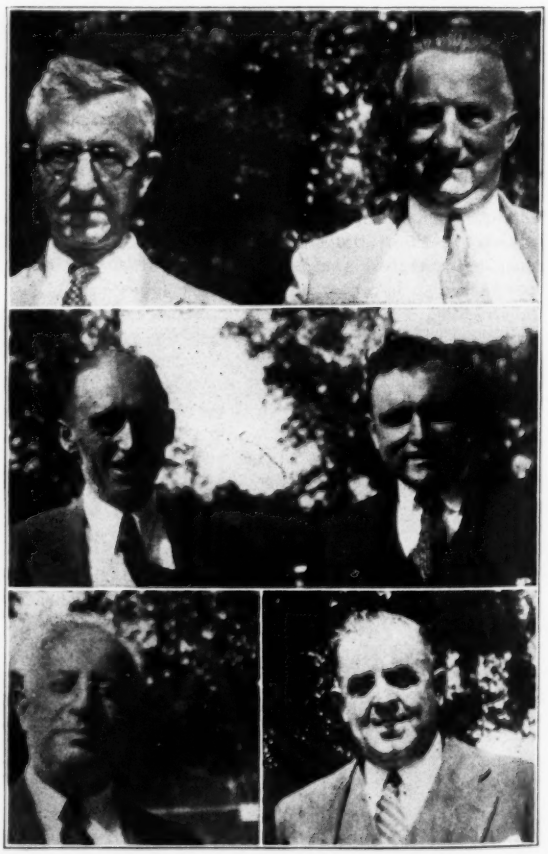
Hamilton, Ohio—Gilbert W. Douglass has moved his heating and plumbing business from the Harry Kapp garage building to the northeast corner of Park place.

Milwaukee, Wis.—The Kuhlman Plumbing and Heating Co., 822 National avenue, is the new name of the former firm of Kuhlman & Bischoff, Rudolph J. Bischoff having sold his interest. The firm is capitalized at $10,000, and the present incorporators are August M. Krech, Edward C. Kuhlman and Mrs. Mabel Kuhlman.

Greeley, Colo.—E. H. Horton has purchased the plumbing and heating establishment of Samuel W. Williams at 1216 Eighth avenue, and is having it remodeled.

Storm Lake, Iowa—S. S. Wilson has moved his plumbing business from the LeGrange building to the new Porath building at East Fifth and Cayuga streets.

Atlanta, Ga.—The Capital Heating & Plumbing Co. has announced the opening of its new sales and service building on Spring street, near Eleventh, which combines the latest features in plumbing and heating service.



Top row: William Klenert, Paramount Plumbing & Heating Supply Corp., New York City; Fred J. Schill, Schill & Burford, Inc., New York City. Middle row: Harry Chute and George Hamill, both of A. M. Byers Co., New York. Bottom row: Paul Bernstein, umpire; J. E. Daly, Consolidated Gas Co., New York City. Photos taken at the outing of the Manhattan Master Plumbers' Association

New Business Ventures

St. John, New Brunswick—R. L. Hanrahan has opened a plumbing and heating establishment on Prince Edward street.

New York, N. Y.—The Magrod Plumbing and Heating Co. has been organized and incorporated with a capital of $5,000 by A. M. Magrod and associates, to establish and operate a plumbing and heating contracting and engineering business. The new firm is represented by G. Baldwin, 34 Rivington street.

Top row: The women and children attending the outing of the Master Plumbers' Association of Queens Borough, N. Y. Bottom row, at left: John L. Edminston and Mrs. Edwin Ruhl. At right, front row: Mrs. J. B. Daly, Miss Gertrude C. Gleason of Consolidated Gas Co. and Mrs. A. Steiger. Back row: J. B. Daly and A. Steiger, secretary of Brooklyn Master Plumbers' Association

Buffalo, N. Y.—The Seneca Plumbing-Heating Co. has been established as a partnership at 56 Myrtle street, by Bright Errolina and Anthony Errolina.

San Francisco, Calif.—The Frank Doe Plumbing Co., Inc. has engaged in the plumbing and heating contracting business at 235 Montgomery street.

Buffalo, N. Y.—The Utilities Gas Steam Radiator Co. has been established here as a partnership by Carl F. Menzie, 430 M. and T. building, and Frank J. Moon, 10 Seventeenth street. It is planned to engage in the plumbing and heating contracting business.

New York, N. Y.—The John Weiss Plumbing Co. has been organized and incorporated by John Weiss and associates, with a capital of $20,000, to establish and operate a plumbing contracting and engineering business. The new firm is represented by A. M. Katz, 570 Seventh avenue.

New York, N. Y.—Elias Rosenbluth and associates have organized and incorporated the firm of Elias Rosenbluth, Inc., with a capital of $10,000. It is planned to establish and operate a heating engineering and contracting business. Representing the new concern is A. M. Davis, 1 East Forty-fourth street.

New York, N. Y.—The B. and W. Plumbing Co. has been organized and incorporated, with a capital of $6,000, to establish a plumbing contracting and engineering business in the Bronx. M. D. Seigel, 277 Broadway, represents the new firm.

Islip, Long Island—The Suffolk County Heating Co. has been organized and incorporated, with a capital of $10,000, to establish and operate a heating contracting and engi-

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RIVERSIDE COPPER RANGE BOILERS
No Rust
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Riverside Copper Range Boilers give you everything you have ever wanted in economy, efficiency and long life.
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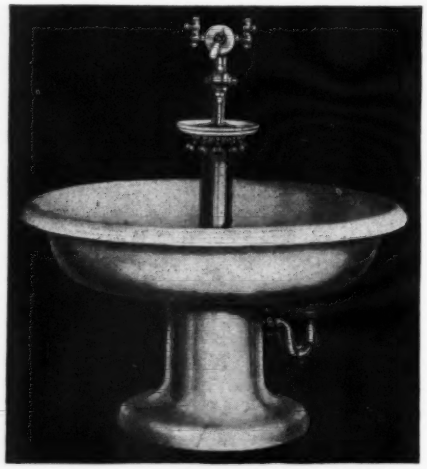

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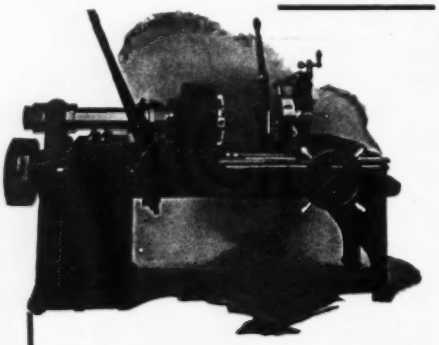
411 West Town St. Columbus, Ohio
Manufacturers also of Ventilated Closets, Urinals, Steel Partitions for Toilet Rooms, Drinking Fountains



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PEERLESS B&K DUPLEX P.D.Q.C PEERLESS B&K DUPLEX P.D.Q.C

Left: W. O. Rawls, Monroe. Center: A. W. Cox, Excelso Products Corp., Buffalo; L. P. Pope, American Radiator Co., Richmond, Va. Right: Ed. Walker, U. S. Radiator Corp., Norfolk, Va. Photos taken at the convention of the North Carolina Association of Plumbing and Heating Contractors

neering business. The new firm is represented by F. P. Nohowell, Bay Shore, Long Island.

San Francisco, Calif.—Paul Luvisi has engaged in the plumbing and heating business at 1942A Post street.

New York, N. Y.—The Village Plumbing and Heating Co. has been organized and incorporated, with a capital of $50,000, to establish and operate a plumbing and heating contracting and engineering business. P. Goldfarb, 302 Broadway, represents the new concern.

Detroit, Mich.—Louis Greenspan & Co. has been incorporated, with a capital of $2,000, to engage in the plumbing and heating business at 10222 Fenkell avenue.

Detroit, Mich.—The Levine & Cole Plumbing & Heating Co., 3789 West Chicago boulevard, has been incorporated with a capital stock of $10,000.

Los Angeles, Calif.—The Acorn Plumbing Co. has engaged in business at 7549 Santa Monica boulevard, under the management of Frank H. Howland.

New York, N. Y.—The Renmac Developers, Inc., has been organized, with a capital of $10,000, to establish and operate a plumbing contracting and engineering business. L. Scadron, 1776 Broadway, represents the new concern.

Philadelphia, Pa.—The Triangle Plumbing & Heating Co. has recently been established in offices in the Tioga Trust building, Seventeenth and Tioga streets. George E. Bevan heads the concern.

Miami, Fla.—The Bell & Bell Plumbing Co. has been organized and incorporated to engage in the plumbing and heating business, by N. R. Field, Bay Biscayne building, and associates.

Lower left: E. R. Faires of Charlotte. Middle picture: J. D. Aman and S. T. Hicks, both of Greenville. Lower right: David Griffiths, secretary of Charlotte association. Photos taken at the convention of the North Carolina Association of Plumbing and Heating Contractors

New Trade Literature

Forced Draft Fans

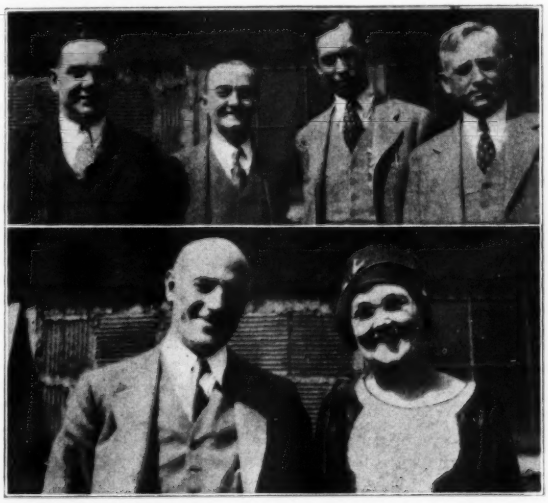
Buffalo Forge Co., of Buffalo, N. Y., is distributing a circular describing its forced draft fans. A technical description is given, and bearings, couplings, rotors, etc., are illustrated in detail. An installation in a Wisconsin paper mill is also shown.

"Are Users Satisfied?"

"Are Users Satisfied?" is the title of a 16-page booklet just issued by the Bradley Washfountain Co., of Milwaukee, Wis. The booklet describes and illustrates the company's fountain for group washing in industrial plants, shops, railway stations, etc. The various repeat orders received from forty-three companies are listed, in answer to the question in the title of the booklet.

Booklets of B. F. Sturtevant Co.

B. F. Sturtevant Co., of Boston, Mass., has just issued a series of three booklets. One of these booklets gives data for the use of architects, engineers, contractors and owners on the subject of the company's overhead type of air heaters, and cabinet heaters for plants, workshops, garages, etc. Diagrams show suggested methods of suspension and installing. Piping and wiring diagrams and capacity tables are also given. The second booklet includes a technical description of the heaters, and illustrations of installations where the company's fans have been used for ventilation. "Tips on Heater Selling" is the title of a third booklet which gives selling tips on the company's heaters.



Top row: H. I. Pratt of J. A. Sexauer Mfg. Co., New York City; Harry Quinn, Bailey-Farrell Mfg. Co., Pittsburgh; Roy Wilson of Uniontown, J. C. Knox, Ruud Mfg. Co. Bottom row: Mr. and Mrs. J. H. Clark of Pittsburgh. Photos taken at the convention of the Pennsylvania State Association of Master Plumbers

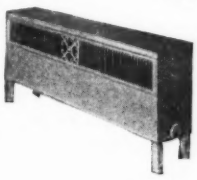
Booklet of Septic Tank Co.

Philadelphia Septic Tank Co., of Philadelphia, has issued a booklet describing its reinforced concrete septic tanks, septic closet systems, comfort stations, grease traps and sewage syphons. The booklet contains numerous illustrations and diagrams.

Circular of Zanesville Engineering Corp.

Zanesville Engineering Corp., of Zanesville, Ohio, is distributing a circular describing its cooling towers, for

A Complete Radiator — McQUAY Cabinet RADIATOR — Not Just a Cover



Truly decorative—and more efficient. It saves walls and drapes by sending the heated air out into rooms, instead of up against the walls.

A humidifying pan (inside the cabinet) provides the moisture needed for healthy heating.

In sizes for any room—
Ask for descriptive literature

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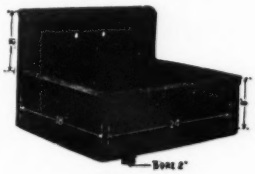

Figure 237
Acid Proof One Piece Laboratory Sink with Back

UNUSUAL strength, toughness and durability, ease of installation and inexpensiveness combined with its acid and corrosion proof qualities make Knight-ware ideal for WASTE, DRAIN and VENTILATING LINES, LABORATORY SINKS, SUMPS and similar acid proof equipment.

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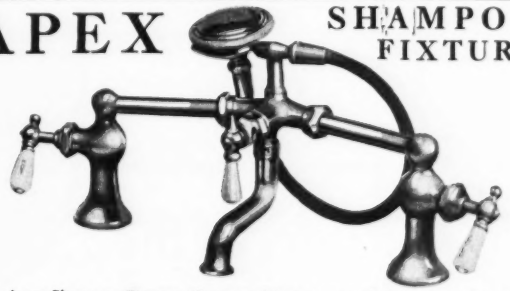
KNIGHT-WARE
"IT IS THE BODY ITSELF"

APEX SHAMPOO FIXTURE



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The STEBBINS-RICH BRASS MFG. COMPANY
Manufacturers of Water Works, Apex Brass Goods, Simplex Copper Joint Coupling
6723 DENISON AVE. CLEVELAND, OHIO

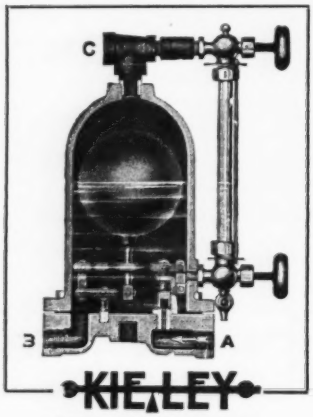
Improved "Wilhelmi" BOILERS

The method of construction used in the manufacture of Improved "Wilhelmi" Boilers differs greatly in that it is the best features combined of the results of years of experience. That this method is highly successful is evidenced by the popularity of these boilers.

HAYES MFG. CO., *Makers* Paterson, New Jersey

KIELEY FIG. 800

WATER FEEDER FOR LOW PRESSURE BOILERS



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Advise a Feeder before trouble and be safe.

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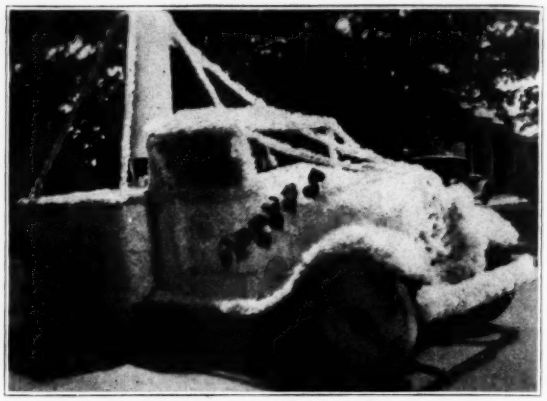
Hinges of the Better Kind

Hinge No. 100—Close-Ruf

GRAND HAVEN BRASS FOUNDRY
Grand Haven, Michigan
Hinges for all types of toilet seats
All hinges can be furnished Crodon Plated if so desired.



The float of Shiver Bros. in the fourth annual watermellon festival, at Hope, Ark.

cooling of water in quantities of from 4 to 75 gallons per minute. The various parts of the cooling towers are described.

"What Price B.t.u.'s?"

"What Price B.t.u.'s? or how to heat airplane hangars and other high roof modern industrial buildings" is the title of a booklet just issued by the Buckeye Blower Co., of Columbus, Ohio. The booklet explains the principle of heating by unit heaters. Several diagrams show how to heat various types of industrial buildings.

Catalog of Reading Foundry & Supply Co.

Reading Foundry & Supply Co., of Reading, Pa., has just issued its Catalog F, consisting of 72 pages with numerous illustrations. Plumbers' specialties, soil pipe and soil pipe fittings are listed in the catalog. Among the classifications set forth in the index are: Closet Ty's, sanitary tees, saddle fittings, insertable joints, back water ferrules, closet connections, special floor drains, garage traps, boiler stands, testing plugs, manifolds or branch tees and tank heaters.

Folders of Kohler Co.

Kohler Co., of Kohler, Wis., is distributing a folder with the caption, "Let the electric sink wash dishes for you." The convenience of having dishes automatically washed is emphasized, and a series of pictures shows the sink with the dishes placed in it, with the spray in operation for rinsing, etc. Another folder describes the company's toilet seats. Numerous styles are illustrated.

Circular of Time-O-Stat Controls Co.

Time-O-Stat Controls Co., of Elkhart, Ind., is distributing a circular describing its electric gas valve. The valve is designed to be used in conjunction with a room thermostat where low-pressure gas-fired equipment is installed. A diagram shows an installation for a gas-fired hot water boiler, using the company's controls.

Circular of Medina Iron & Brass Co.

Medina Iron & Brass Co., of Medina, N. Y., is sending out a circular describing its cast iron threaded pipe. An illustration shows connection made between this pipe and an ordinary soil pipe fitting by means of threaded bead. Another illustration shows two lengths of the company's pipe, male and female threaded.

Bulletins of Economy Pumping Machinery Co.

Economy Pumping Machinery Co., of Chicago, is sending out Bulletins 412, 413 and 414. Bulletin 412 describes non-clogging sewage ejectors for draining refuse pits, etc., where solids may collect with the water. Bulletin 413 describes a line of pumps designed for pumping water

containing solids, such as rags, sticks, scale, etc. These horizontal and vertical centrifugal pumps are made with capacities from 100 to 5,000 gallons per minute. Bulletin 414 describes small multi-stage centrifugal pumps. A selection table, with dimensions and description is given.

Binks Mfg. Co.'s Circular

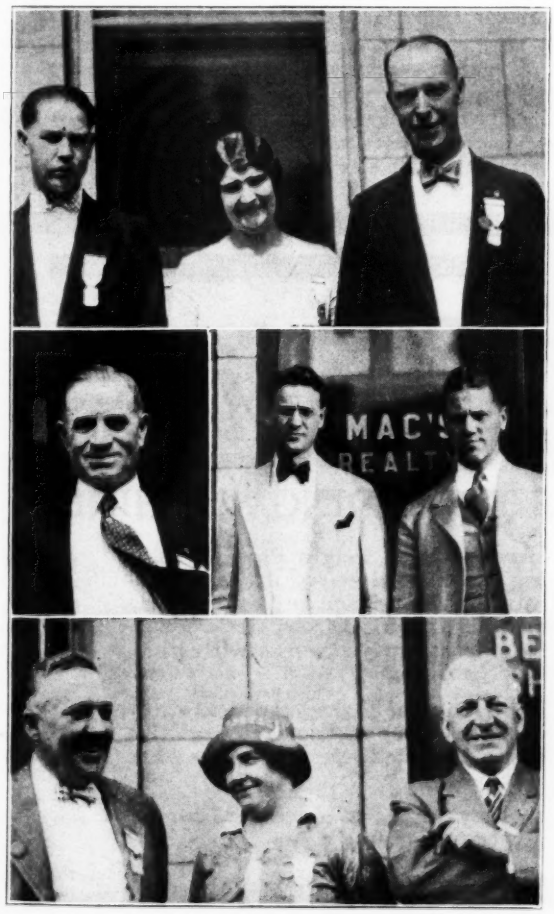
Binks Mfg. Co., of Chicago, is sending out a circular describing its general utility spray. This unit for spray painting includes a spray gun, a quart size, all metal pressure cup and an electric motor. A number of photographs show the various uses to which the spray may be put.

Chemical Toilet Corp.'s Circular

Chemical Toilet Corp., of Syracuse, N. Y., is distributing a circular describing its septic sewage disposal system, with drain pool for use where the drainage area is limited. Septic tank installation details are given in diagrams.

Booklet of Linde Air Products Co.

The Linde Air Products Co., New York City, has prepared a 24-page booklet containing information on the installation of oxy-acetylene welded piping for industrial uses and also for the heating of domestic and industrial buildings. The first section considers the uses of oxwelded piping in industrial plants, including piping for



Top row: Maurice Dwyer, Mrs. and Mr. M. Dwyer. Middle row: Otto Meinert, Ed. Groeniger and W. C. Groeniger, Jr. Bottom row: Mr. and Mrs. A. H. Denzin and Ed. G. McGraw. Photos taken at the convention of the American Society of Sanitary Engineering

The Most Popular Blow Torches in the World

THE Clayton & Lambert line of blow torches and firepots has been made for forty years, and nearly every year has seen some real improvement in it. This policy of constantly bettering an already fine product accounts for Clayton & Lambert's overwhelming popularity.

There's a size and style for any need. Priced right. Does its job in first-class style. And keeps on doing it, year after year, in spite of rough treatment and even careless handling. Your regular supply house carries Clayton & Lambert products, or can get them for you.

Clayton & Lambert Mfg. Company, Detroit, Mich.

Telephone: Lawndale 1850-1851

Ingot Brass

Smelters and Refiners

High Quality Metals

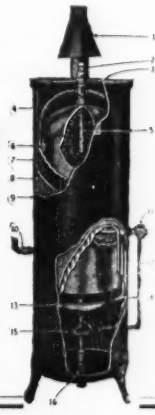
Metals made up to specifications.

R. LAVIN & SONS

2511-2525 W. 21st St.

John Hartman, Sales Mgr. **Chicago, Ill.**

THE AMPCO AUTOMATIC COPPER STORAGE SYSTEM



There are 16 points in Ampco construction that will give you a big selling advantage. Ask us what these points are.

Or, ask your jobber.

ARTISAN METAL PRODUCTS CO.

Charlestown, Mass.

HEAT-PROOF CREST FAUCET CUSHIONS
CREST TANK BULBS
RUST REMOVER
DRAIN PIPE CLEANER
ENAMEL CLEANER
BOILER LIQUID
BOILER CLEANSER
CREST DE-ŌDŌ

CREST Quality

CREST products carry on long after the others have quit, *because quality is built into everything CREST makes.*

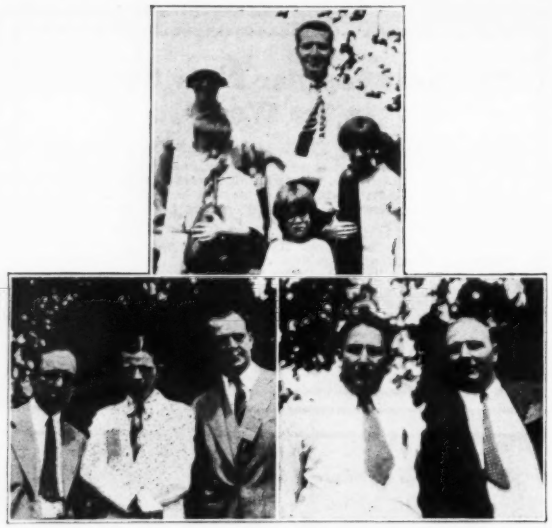
The CREST Slogan

"There Is No Substitute for Quality"

explains the large success we have had. And it explains why Master Plumbers who take pride in their craftsmanship *use*—and *sell*—

CREST QUALITY PRODUCTS

CREST MANUFACTURING CO. INC.
108-110 WEST 25TH STREET / NEW YORK



Top picture: Mr. and Mrs. Daniel Sillers and their children. Bottom row: C. P. Moran, manager of Crane Co., Washington; R. McGonigal, U. S. Radiator Corp., Washington; Thomas Burke, U. S. Radiator Corp.; William Owens and F. M. Amberger, master plumbers. Photos taken at the outing of the Master Plumbers' Association of the District of Columbia

the transportation of oil, gas, chemicals, water, etc., and the second deals mainly with piping for heating and heating systems.

Folder of Edelco Mfg. Co.

The Edelco Mfg. Co., Inc., 2509-11 East Letterly street, Philadelphia, Pa., has prepared an eight-page folder 8½ x11 inches, setting forth in black and white the line of bath traps with wastes and overflows of its manufacture. The folder presents full details and descriptions of its products which are designed for leg tubs as well as built in types.

Folders of Richmond Radiator Co.

Richmond Radiator Co., New York City, is sending out reports for the files of the trade which cover the findings of an official investigating committee of architects and engineers, appointed to make a survey of the boilers, radiators, and enameled ware of its production. The folders, three in number, deal with each product separately, supplemented by a list of the investigators. The information given, besides being descriptive of products and performances, also includes technical data concerning the company's code of boiler and radiator ratings.

Gas-Fired Industrial Unit Heater

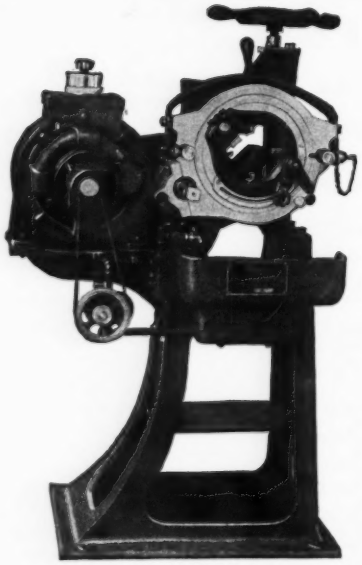
The Columbus Heating & Ventilating Co., of Columbus, Ohio, has just issued a booklet describing its gas-fired industrial unit heater. The combustion chamber, radiator tubes, housing, burners and controls are described in detail.

Broadside of Buckeye Blower Co.

Buckeye Blower Co., of Columbus, Ohio, is sending out a broadside containing numerous diagrams of its large capacity, high velocity industrial unit heater for heating high roof industrial buildings. Tables of low temperature and high temperature radiator capacities are included.

Folder About Kerosene Burners

St. Paul Welding & Mfg. Co., of St. Paul, Minn., is distributing a folder about its kerosene burners, portable hand-pump or compressed air type. The burner is used for preheating in connection with welding and for other kinds of heating where a large flame is required.



3 Inch Portable

Full Line HAND—BELT—ELECTRIC
Models ¼-2; ½-3; 1-4; 1-6; 1-8; 2½-12; 8-16 inches

Curtis

PIPE THREADING MACHINE

Here is a light weight Pipe Threading Machine that requires a minimum of floor space and one which, although requiring very little power for operation, yet works with high efficiency.

Bends may be threaded quickly and easily because of the fact that the dies turn while the pipe remains stationary.

It may be hand operated during power failures.

THE CURTIS & CURTIS CO.
Main Office and Factory: 318 Garden St.
Bridgeport, Conn.

Pipelines Connected by LYT

OUR PUZZLE SOLVED

A few weeks ago we published this puzzle: A boy is given two jugs, one with a seven-gallon capacity, and one with a five-gallon capacity. He is told to go to the river and bring back eight gallons of water, no more and no less. He has no other method of measuring his water than by using the jugs—and he has no way of seeing into the jugs to see exactly how much water is there. How does he do it?

F. S., of Detroit, Mich., says that he had to walk a long way to find a creek, the water was wet, and "the doctor says I have new-mown-hay." Perhaps that is because F. S. took a little longer than was really necessary. Here is how he did it: First he filled the seven-gallon jug then from it filled the five gallon jug, leaving two gallons in the seven-gallon jug. Next he emptied the five-gallon jug and poured the two gallons in the larger one into the smaller one. Then he filled the seven-gallon jug. He now has seven gallons in the one and two in the other, a total of nine. Next he poured three gallons from the larger jug into the smaller one, filling it. Then he emptied it, leaving only the four gallons in the larger jug. He now pours the four gallons into the smaller one. Next he fills the seven-gallon jug and then pours off one gallon into the smaller one, filling it. He now has six gallons in one and five in the other. Now he empties the smaller one, leaving only six gallons in the larger one, from which he fills the smaller one, emptying it again, leaving only one gallon in the larger one. This one gallon he pours into the small jug and fills the large one thus having eight gallons.

Now, he took some time over it, and if he slipped into the water once or twice, that would explain his pneumonia.

But W. J. S., of Los Angeles, Calif., spent a little longer time thinking about it, apparently, for he filled the five gallon jug and put it into the larger one. He now has five gallons in the seven-gallon jug. Next he fills the five-gallon jug and from that pours the necessary two gallons into the larger one to fill it, leaving three gallons in the smaller one. Now he empties the big one and pours the three gallons into it, filling up the five-gallon jug thus arriving at his load of eight gallons.

For the sake of those who like such riddles, we propose this one. A man remarked that he came from a large family. There were eleven boys and each had a sister.

How many children were there in that family?

RECIPROCITY

Willie tried to catch some fish
For his Daddy's dinner dish;
Willie slipped and fell right in,
So Daddy went to fish for him.

H. R. K., Laurel Springs, N. J.

A message to H. R. K.: If what you mention ever comes to pass we will be more than glad to provide the six "scoops"—and more, if necessary.

"SY" SEZ

Customer: "I've brought that last pair of trousers to be reseated. You know, I sit a lot."

Tailor: "Yes, and I hope you've brought the bill to be receipted. You know, I've stood a lot."

Some men are known by their deeds—others by their mortgages.

Ink can be removed from white tablecloths more easily before it is spilled than after.

We learn by doing—and being done.

"SY" MARTIN, Owensboro, Ky.

Yes, "Sy," and by dunning for what is due.

L Y T.

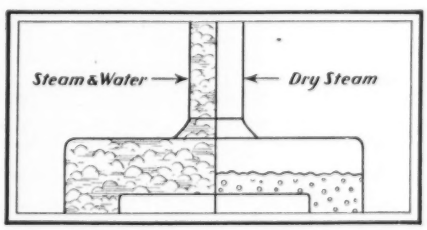
When boilers throw water YOU get the blame

WHEN an angry owner calls you to tell you that one of your boiler installations has thrown water, ruining rugs, floors and furniture, it is usually not your fault, or the fault of the boiler either. But you get the blame. Now science gives you protection against this nuisance.

NoFome

The product that ends boiler foaming and priming forever

absolutely stops and prevents boiler foaming whether in an old or new installation. When the boiler foams the cause is a chemical reaction in the water. And this reaction cannot take place when No Fome is used. The diagram below shows how No Fome instantly stops foaming.



MAKE THIS TEST

To one quart of boiling tap water add 1 teaspoon soap flakes. When it is foaming violently drop in a small quantity of No Fome. You will see that No Fome ends priming instantly. Then try this with any other product on the market and see the difference.

We will be glad to send you a sufficient supply of No Fome to treat a small installation free of charge together with a descriptive folder.

FEDERATED LABORATORIES, INC.

229 East 38th Street, New York City

© F. L. Inc. 1929

Here's the Furnace Coil That Does Away With the Grief!

Patent No. 1649560

The Globe Sizzler is made in different lengths to fit all makes of furnaces. It comes to you ready for installation, each coil packed in an individual carton.

THERE'S no grief in making furnace coil installations with the Globe Sizzler — nothing but satisfaction. Satisfaction in knowing that you give the customer a furnace coil which can not clog or lime up because it contains no pockets—circulation is always in a horizontal or an upward direction. Satisfaction because water always flows freely and noiselessly through the Sizzler, because the greater heating surface means *hot* water in less time.

There's further satisfaction in installing this coil because it brings you extra profits. It usually costs less than "made-up" coils, yet customers recognize its superiority and willingly pay more for it. It saves time and labor, being adjustable to variable water openings, and is easily and quickly installed in any furnace.

The Globe Sizzler is a patented one-piece coil, rapidly being adopted by plumbing and heating dealers throughout the country. It is stocked by all leading plumbing and heating wholesalers. Write us or ask your jobber for details on the Globe Plan for making your furnace-coil business show you bigger profits.

GLOBE MACHINERY & SUPPLY COMPANY
227 W. Court Ave. Des Moines, Iowa

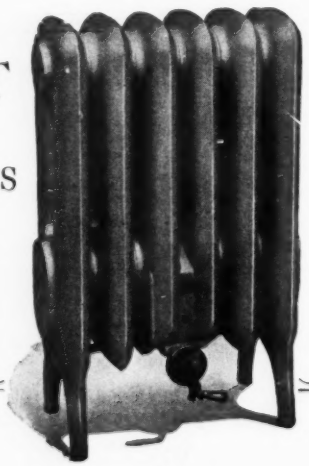
The GLOBE Sizzler
THE NO-POCKET, ONE-PIECE FURNACE COIL

COMET GAS RADIATORS

◆

The Perfect Heat

◆



Complete heating efficiency can be obtained at the lowest possible cost with the use of the Comet Radiator.

There is nothing about them to get out of order and they need practically no attention.

Let us show you how to make good profits with the Comet.

COMET RADIATOR CO.
INTEGRITY BLDG. ∴ PHILADELPHIA, PA.

Left: W. Pitt Simpson, with wife and daughter, all of Fort Lauderdale. Mr. and Mrs. F. W. Gates of Manatee. Photos taken at the convention of the Florida Master Plumbers' Association

Bath a Day Movement

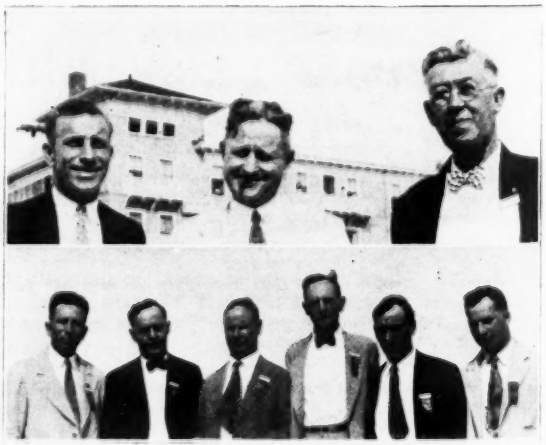
A letter from Salt Lake City, Utah, indicates that the auxiliary there has interested itself in an essay contest to be held in the two high schools of the city. This is a splendid method of securing publicity for the plumbing industry. The topic assigned is "Sanitation in the Home." It will be remembered that this practice was adopted by the national association at the Memphis convention, when something over four thousand school children entered into the contest conducted by the association.

171

As an aid to such endeavors, "The Story of the Bath" is invaluable. It furnishes the groundwork for the children's essays, while it directs their attention specifically to the matter of bathing and bath tubs.

We recommend a study of "The Story of the Bath" by those auxiliaries and associations, where the need for some educational effort is felt for the winter months. In it is all the material necessary to any kind of effective activity.

Those who have not read "The Story of the Bath" may receive a free copy by writing us. After reading it, we will be glad to help in planning a Bath a Day campaign or essay contest.



Top row: T. P. Bardon, F. Quinlan and O. A. MacIntosh, inspector, St. Petersburg. Bottom row: C. B. Perkins, Lakeland, president; H. Pepper, Jacksonville, vice president; R. Engstrom, Jacksonville, treasurer; J. C. Mann, Winter Haven; F. Williams of Tampa, H. W. Thorn of West Palm Beach, all district vice presidents. Photos taken at the recent convention of the Florida State Association of Master Plumbers

Top row: C. J. Madden, U. S. Radiator Corp.; Harry Heckel, Hackensack; P. Gilmour, The Thatcher Co.; W. A. Brown, American Radiator Co. Bottom picture: Members of the entertainment committee. Back row: A. Mitchell, C. H. Koster, John J. Grady, George Langer, president of South Bergen Master Plumbers' Association; Fred Margeit, secretary-treasurer of the committee. Front row: W. J. Wilson, M. Hobin, chairman, and Carl Gland. Photos taken at the outing of the South Bergen Master Plumbers Association, held recently at Blasberg's Farm, Hawthorne, N. J.

Epigrams—For Your Use

Poverty is said to be a sure cure for dyspepsia, but the cure may be worse than the disease.

* * *

Ever notice how hard it is to pay for a thing on the "easy payment" plan?

* * *

A married man is always figuring on the money he could save if he wasn't married.

* * *

About the hardest thing for a man to do is to kiss a girl unexpectedly.

* * *

Many a man seeks a job as a janitor so that his wife can do most of the work.

* * *

A bachelor knows about three times as much as a spinster thinks he knows.

* * *

Eve had the best husband in the world—at that time.

* * *

The man who pays as he goes seldom goes fast enough to overheat himself.

* * *

Trouble seldom visits those who do not expect it.

* * *

Even a little man can carry a big opinion of himself.

* * *

The crookedness of a river is naturally a matter of course.

* * *

It's a wise man who doesn't send his wife to the door when fortune knocks.

GERSTEIN & COOPER
Copper Range Boilers

Materials used in the manufacture of Gerstein and Cooper Copper Boilers is purchased under the most rigid of specifications. It is constantly checked and tested so that the quality never varies. This is one reason for Gerstein and Cooper leadership.

Write for specifications.

Gerstein & Cooper Co.
1 W. Third St., So. Boston, Mass.

EMERGENCY TUBE PLUGS

Be sure you get the genuine Johnson-Washburn Emergency Tube Plug. It means the difference in a job well done and one that is apt to cause you trouble and loss of profit. Ask for them by name.

Johnson-Washburn Co.
91 Haverhill St. Boston, Mass.

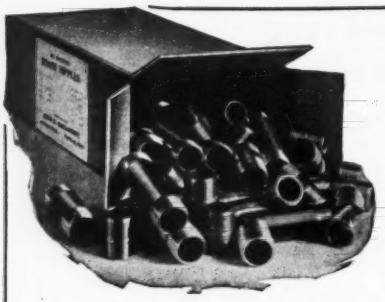
Pipe Joint Cement
"AMERICAN SEAL"
Dry and Plastic **Gray and Graphite**

Put an end to "Leaky" joints. Use "American Seal" Pipe Joint Cement the cement which is noted for its lasting qualities and which makes joints proof against leakage for all time.

THE WILLIAM CONNORS PAINT MFG. CO.
TROY NEW YORK

GENUINE NASON STEAM TRAPS
UPKEEP
KEEP DOWN

NASON
NASON MANUFACTURING CO.
71-FULTON ST. NEW YORK NY.
Steam Specialty Specialists Since 1841



BALLANTINE handy cartons of brass nipples in a wide assortment of sizes simplify your brass nipple handling problems and reduce time costs by putting the right nipple within easy reach at all times. Order Ballantine Brass Nipples from your jobber.

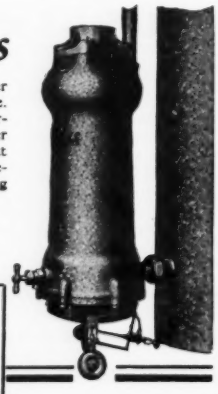
B. D. BALLANTINE
10 Main Street, Fitchburg, Mass.

BALLANTINE BRASS NIPPLES

For Vapor Gas

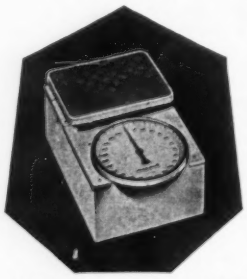
The Vapor Gas Bull's Eye Water Heater makes its own gas from low test gasoline. The famous Bull's Eye principle of surrounding the heating element with water is employed in this heater with great success. Surprisingly low in price, decidedly high in quality, and heating efficiency.

The Dunham Company
Established 1846
Berea (Suburb of Cleveland) Ohio



Bull's Eye WATER HEATER

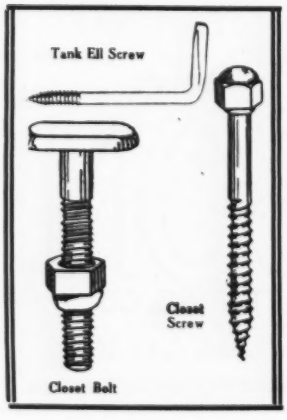
You always make more money
on



HANSON
WEIGH MASTER
BATH ROOM SCALES

Superior non-tipping scales, finished in beautiful colors to harmonize with modern bath rooms. Send for prices.

HANSON SCALE COMPANY, 546 N. Ada St. Chicago



HINDLEY'S
Plumbers' Specialties

Have these specialties on hand when you want them. If you do not have them on hand now order your supply at once. It will save you time and money.

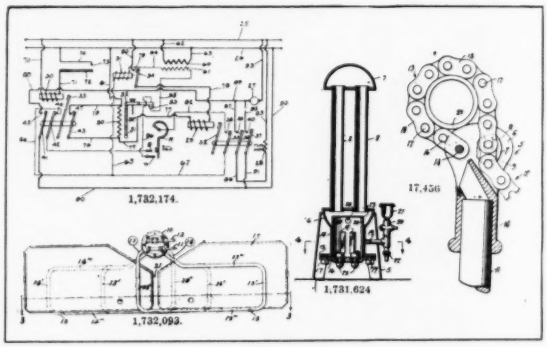
HINDLEY MFG. COMPANY
VALLEY FALLS, RHODE ISLAND

PATENTS

Heating Department

17,456. Pipe Wrench. Oscar Johnson, Elmhurst, N. Y.

1,731,624. Electrically-Heated Steam Radiator. Arthur J. Henry, Los Angeles, Calif., assignor of one-half to Sidney J. Bush, Los Angeles, Calif.

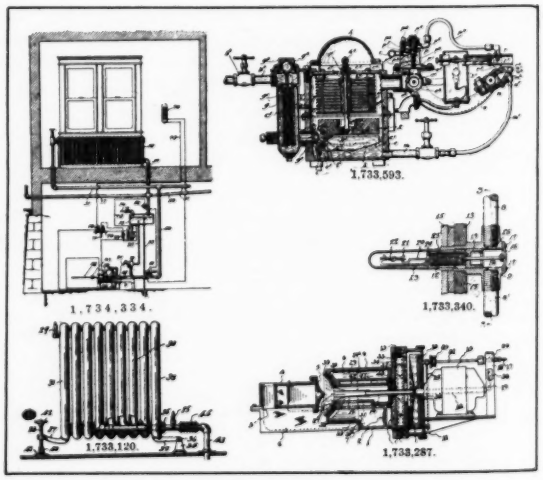


1,732,093. Refrigerating Apparatus. Jesse G. King, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware.

1,732,174. Heat-Regulating Device. Harold W. Sweatt, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a Corporation of Delaware.

1,733,120. Single-Pipe Steam-Heating System. Frazer W. Gay, Newark, N. J.

1,734,334. Steam-Heating System. Einer W. Larsen, Chicago, Ill.



1,733,287. Oil Burner. Benjamin Franklin Truesdell, Collingwood, Ontario, Canada.

1,733,340. Thermostatic Gas Cut-Off for Hot-Water Boilers. Philip D. Fowler, Philadelphia, Pa., assignor to Lovekin Water Heater Company, Philadelphia, Pa., a Corporation of Pennsylvania.

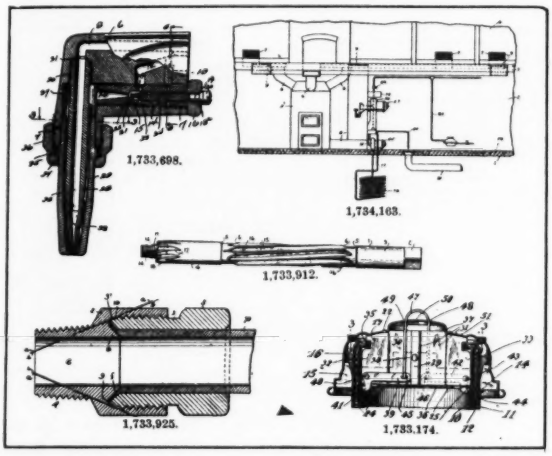
1,733,593. Oil Burner. Arthur B. Goodspeed, Newark, N. J.

1,733,174. Liquid-Fuel Burner. Lewis T. Wilcox, Peekskill, N. Y., assignor to Wilcox Patents Corporation, Peekskill, N. Y., a Corporation of New York.

1,733,698. Cutting Torch. James R. Rose, Edgeworth, Pa.

1,733,925. Pipe Coupling. Albert J. Weatherhead, Jr., Cleveland, Ohio.

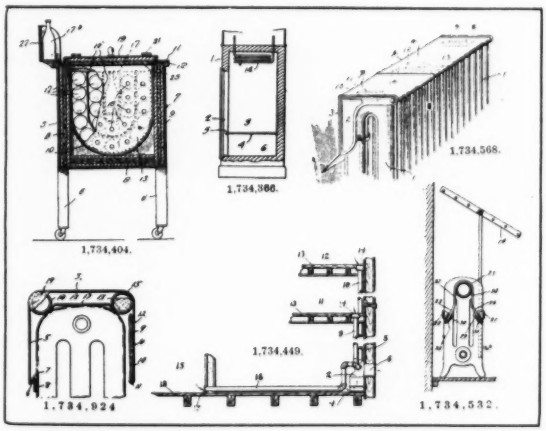
1,733,912. Reamer. Michael I. Seiler, Millersburg, Pa., assignor to Keystone Reamer and Tool Company, Millersburg, Pa., a Corporation of Pennsylvania.



1,734,163. Heating, Ventilating, and Humidifying Apparatus. Charles P. Eisenhauer, Dayton, Ohio.

1,734,366. Refrigerator. Frederick J. Corneil, Detroit, Mich., assignor to Copeland Products, Inc., Detroit, Mich., a Corporation of Michigan.

1,734,404. Refrigerator. James E. Sapp, Bainbridge, Ga., assignor to Rich Manufacturing Company, Bainbridge, Ga.



1,734,532. Radiator Attachment. Guido M. Sacerdote, New York, N. Y.

1,734,568. Radiator Hood. William S. Elters, Dayton, Ohio, assignor to The Gem Metal Shield, Inc., Dayton, Ohio, a Corporation of Ohio.

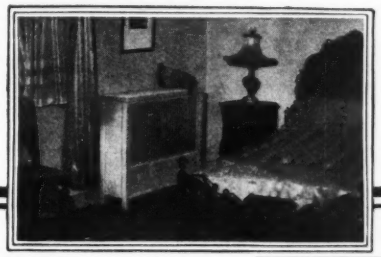
1,734,924. Radiator Wall Shield. Henry G. Sweitzer, Detroit, Mich.

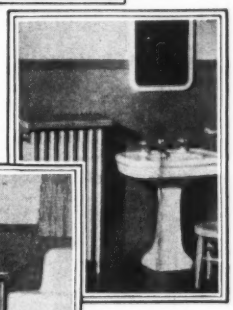
1,734,449. Ventilating Apparatus. Charles H. Smith, Yucaipa, Calif.; George S. Morrell and Harry L. Smith, executors of C. H. Smith, deceased.

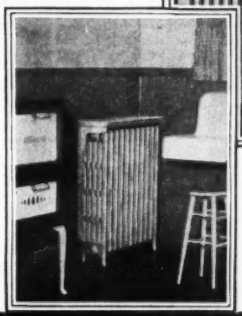
1,734,439. Interior Pipe Wrench. Gerald R. Livergood, Houston, Tex.

1,734,234. Pipe Wrench. Johan Skaug, Rothsay, Minn.

1,734,486. Fuel-Burning Apparatus. Clarence E. Hawke, Metuchen, N. J., assignor to The Carborundum Company, Niagara Falls, N. Y., a Corporation of Pennsylvania.







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Radiator Shield Division
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Here is a sound opportunity. Dealer Sales Franchises are limited. Write at once.

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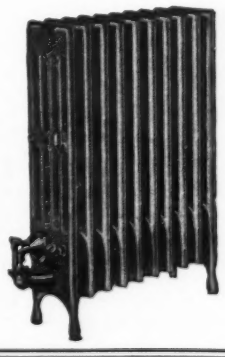
You want the winter season to balance with the big profit of the summer—here's how to do it—

Go to your jobber, ask him to show you the Automatic Gas-Steam Radiator line for auxiliary house heating.



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Pittsburgh :: Penna.

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Manufacturers - Established 1887
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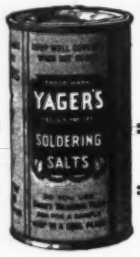
SOLDERING SALTS



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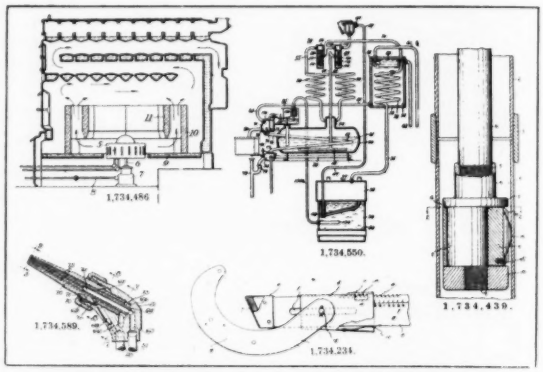


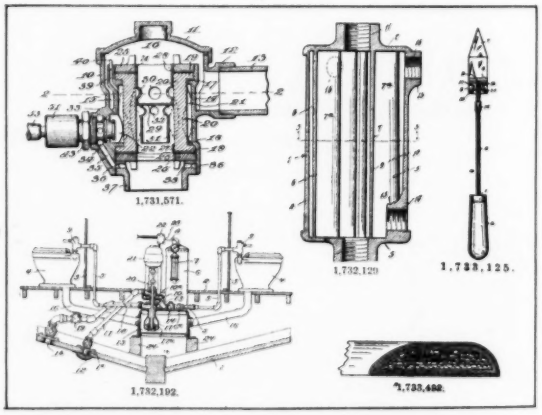
1,734,589. Cutting and Welding Torch. Robert D. McIntosh, River Forest, Ill., assignor to The Imperial Brass Manufacturing Company, Chicago, Ill., a Corporation of Illinois.

Plumbing Department

1,732,192. Water-Closet Installation. Ulysses G. Lee, Chicago, Ill., assignor to U. G. Lee & Co., Inc., Chicago, Ill., a Corporation of Illinois.

1,731,571. Flush Valve. Ray Heare, Los Angeles, Calif.

1,732,129. Water Heater. Otto C. Kuebler, Yonkers, N. Y.



1,733,125. Soldering Iron. Anton Kruschka, Pittsburgh, Pa.

1,733,482. Toilet Seat and Process of Making the Same. Byron C. Booth, Muskegon Heights, Mich. assignor to The Brunswick-Balke-Collender Company, Chicago, Ill., a Corporation of Delaware.

1,733,425. Water-Heating Apparatus. Adolph Pfender, Chicago, Ill., assignor to Ferguson and Lange Foundry Company, Chicago, Ill.

1,734,028. Automatic Drain Valve. Albert L. Brice, Frederick, Md., assignor to The Frederick Iron & Steel Company, Frederick, Md., a Corporation of Maryland.

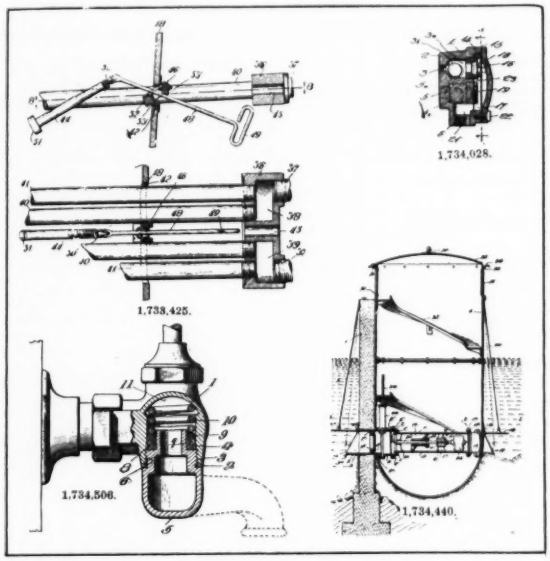
1,734,440. Drainage Pump. John Markman, Forreston, Ill.

1,734,506. Faucet. Albert Ulman Walter, Baltimore,

Md., assignor to Baltimore Valve Corporation, Baltimore, Md., a Corporation of Maryland.

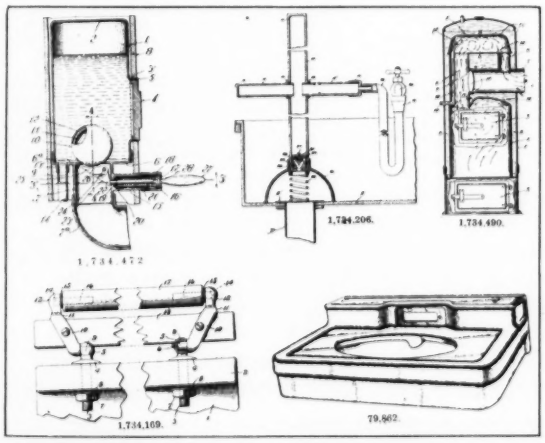
79,862. Lavatory. Earl G. Watrous, Chicago, Ill.

1,734,472. Flushing Apparatus. Luther E. Cohoon, La Grange, Ill.



1,734,490. Water Heater or Boiler. Virgil O. Jones, Decatur, Ill., assignor of one-half to William C. Jones, Niantic, Ill.

1,734,169. Toilet-Seat Hinge. Paul A. Johnson, Grand Haven, Mich., assignor of one-half to Alvin E. Jacobson, Grand Haven, Mich.



1,734,206. Hydraulic Clean-Out Device. Henry W. Fisch, Los Angeles, Calif.

1,734,197. Filtering Material. Henry Blumenberg, Jr., Los Angeles, Calif. A filtering material for use as a purifying, deodorizing and oxidizing agent, containing copper sulphate, calcium hypochlorite, the proportions by weight being one molecule of copper sulphate to one molecule of calcium hypochlorite, and an inert cellular material.

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Double Rooms, private bath
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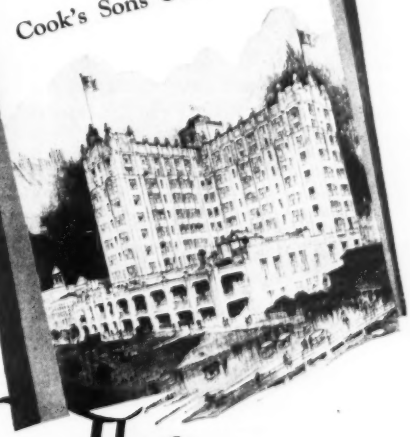

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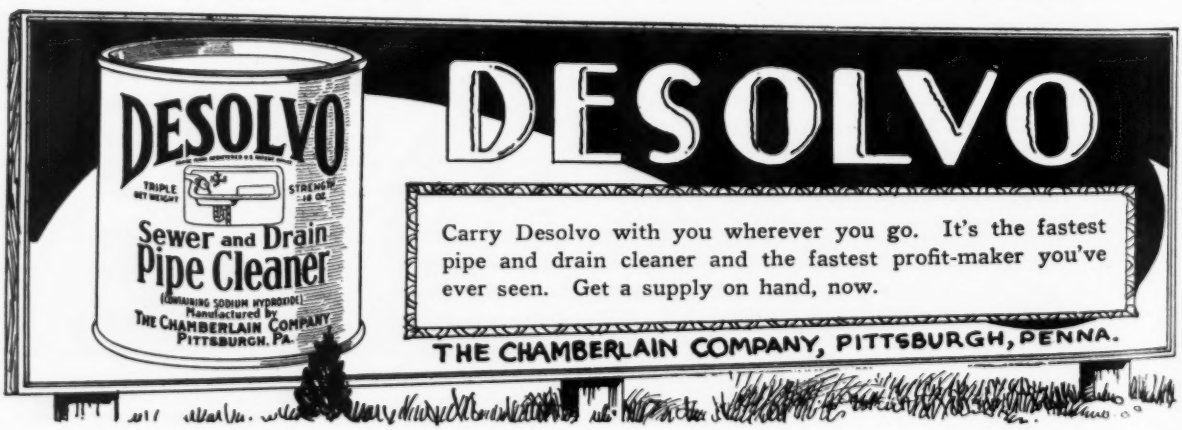
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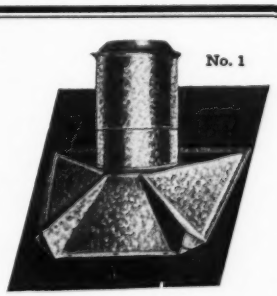

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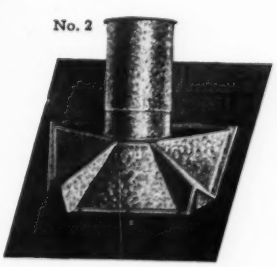

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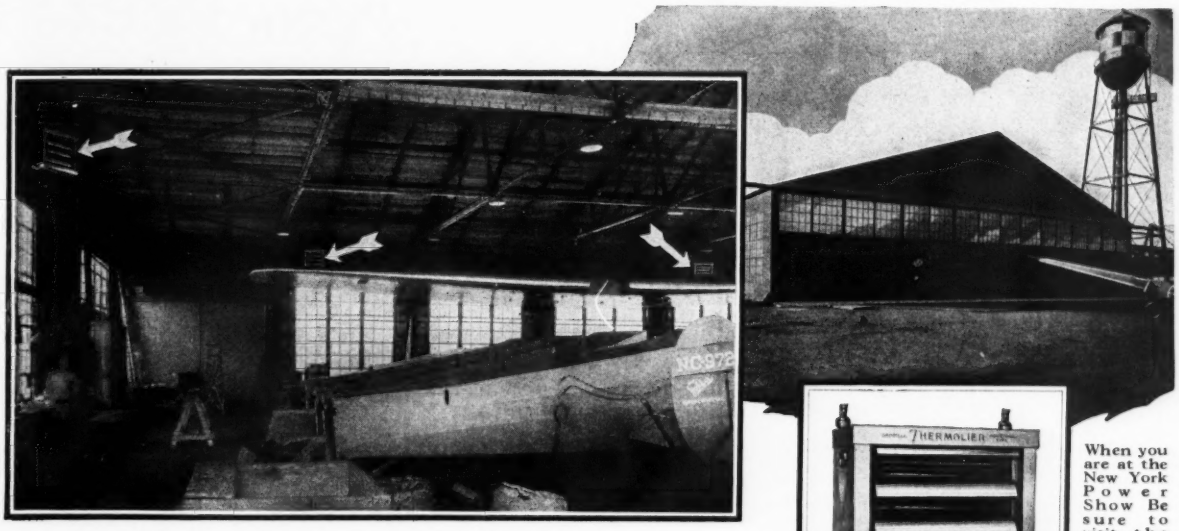

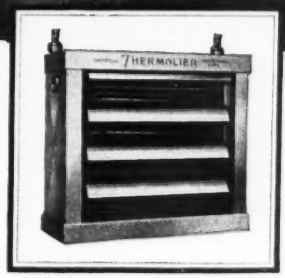

When you are at the New York Power Show Be sure to visit the distinctive Grinnel exhibit on the mezzanine floor.

Made in eight models to fit any space and every condition

"What! Jersey mosquitoes in winter?"

"YOUR confounded unit heaters have brought back the mosquitoes!" said a foreman at Hasbrouck Heights, New Jersey plant of the Fokker Aircraft Corporation of America.

The Grinnell service man was relieved when the foreman smiled and said that he could think of no better proof of Thermolier efficiency.

"Take this building"—he said (See illustrations) "Sheet metal construction, with no insulation whatsoever. And no basement. And planted out here in this wind swept meadow. Hundred feet sq. and 35 feet to the trusses.

"The whole front of the building swings open almost hourly to admit one of the big wings or to roll out the completed plane. We assemble the big fellows here.

"Yet we keep a constant, uniform temperature of 60 degrees. You can see that the men work in their regular overalls. No time off from colds and a lot better morale."

"How do you mean, morale?" asked the Grinnell man.

"Cold drafts, for instance. You'd be surprised after you've yelled "Close that door" a few hundred times a week your disposition gets shot, and you take it out on the other guys and on your work."

Seven Grinnell Thermoliers strategically located, keep this sheet metal building at 60 degrees. So, when the side of the building swings open, the Thermoliers automatically turn loose their maximum heat to overcome the drafts. Then they slip into their loafing load, fan off, no forced draft and consequently practically no condensation or use of steam. For the quantity of heat given up by the incoming steam is, of course, equal to that absorbed by the fan-driven air.

Lowest possible labor costs for installation and maintenance. You fit Thermolier to your space, not space to your heating system. No buried pipes, no basement boiler room. Eighty to ninety per cent less joints, valves, traps, etc.

Thermolier's special cooling leg is right in the unit. The return trap is square up against the heater itself.

This is only one of the 14 advantages making Grinnell Thermolier a *better* unit heater. Booklet detailing these 14 points of superiority gladly sent on your request. And no salesman's call without your request.

Please attach coupon to your letterhead and mail today.

GRINNELL COMPANY

Executive Office: Providence, R. I.

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14 Points of Superiority

GRINNELL COMPANY, INC.
305 W. Exchange St., Providence, R. I.

I want to read more facts about the Thermolier. Send along the booklet.

Name_____

Address_____

City_____

Bad news for Coldie
Good news for plumbers

Said Coldie, "It looks
"Like our plan will fail
"After taking a look
"At that stack of mail."

"Folders and stickers
"And broadsides as well
"Are sent to the plumbers
"To help him sell."

"By using the Vogel
"Direct-by-mail
"They find that it's easy
"To make the sale."

"Before very long
"I suppose you know
"We'll find there are Vogels
"Wherever we go."

"Then you and I
"Will be out in the cold
"'Cause Vogels won't break
"Either new ones or old."

Number One Vogel Frost-Proof Closet. Simple in operation. Sturdy in construction. Half a million in operation.

Put in VOGEL Frost-Proof Closets and Hydrants

Because they have proven for longer than 20 years *they will never freeze*

Years of experience with **VOGEL** Frost-Proof Closets and Hydrants have given plumbers good reason to say that **VOGEL**S will never freeze. They are exposed to the coldest weather for months at a time. They are in service year after year and still neither a **VOGEL** Closet or a **VOGEL** Hydrant has ever frozen.

This is the story to tell your customers. The **VOGEL** Closet never requires repairing and seldom needs even as much as a new washer.

We'll help you sell **VOGEL** products with all kinds of direct-by-mail material, folders—stickers—blotters—broadsides. We'll gladly send you as many as you need, imprinted with your name and address. Remember that.

Vogel Frost-Proof Hydrant

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

See inside front page for VOGEL SELFLUSH advertisement.

VOGEL *Frost-Proof* Products